

COLI-URIA IN CHILDREN 61663: 6189

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HISTORY.

It is only of recent years that the subject of Urinary infection in children has received any attention from the medical profession at large, although as far back as 1871, Joschler remarked on it as being associated with vulvovaginitis. Twelve years later at a meeting of a COLI-URIA IN CHILDREN.

I have determined to write my thesis on coli-uria in children for three reasons:-

Firstly, the general interest of the subject from a diagnostic point of view.

Secondly, the somewhat confused state of the literature of the subject especially with regard to treatment.

Thirdly, the fact that I have the opportunity of utilizing material which has not so far been published in the shape of a series of 50 cases some of which I have had charge of myself at Paddington Green Children's Hospital and at the Hampstead and North West London Hospital.

After a preliminary discussion of the features of the condition I propose to quote the above 50 cases together with 50 selected from the literature as being either typical of the condition or illustrating some special point, and to analyse the features of interest in these 100 cases.

HISTORY.

It is only of recent years that the subject of Urinary infection in children has received any attention from the medical profession at large, although as long ago as 1871, Goschler remarked on it as being associated with vulvovaginitis. Twelve years later at a meeting of a Medical Society in Copenhagen, Hirschprung drew attention to the condition in babies, advocating the free employment of diagnostic catheterisation.

In the same year S.J. Gee wrote a paper discussing pyuria in children.⁽¹⁾ He described

(1) Temporary pyuria

(2) Chronic pyuria.

and dealing with the temporary condition remarks that it is hard to say whether the bladder, the pelvis of the kidney or the whole urinary tract is involved. Some children suffer from symptoms of cystitis, i.e. small quantities of urine passed frequently with pain, while others have no local symptoms. Further the cystitis may only be a local manifestation of a more prevalent disease.

He also published a case quoted below as case I which was undoubtedly a Bacillus Coli infection.

The role of the Bacillus Coli in urinary affections of children was not recognised however until eleven

years later, though in 1890 Escherich noted the occurrence of this organism in adult infections.

In 1894 the same observer described cases in children, and in the same year Emmett Holt in America described three typical cases, evolving a definite group of symptoms and laying down lines of treatment. (2)

Considerable interest was taken in the condition in Germany after this time and Trumpp, Finkelstein and others published cases, but in this country there was nothing more than casual mention made of it in the literature until after the appearance of an article by Thomson (3) dealing with a series of 8 cases and recommending treatment by alkalies. From this time forward the literature has become more and more profuse and the subject has now attained a considerable importance.

	21	1	22
STILL	39	3	42
ESCHERICH	10	0	10
TRUMPP	21	8	29
FINKELSTEIN	9	0	9
THOMSON	21	4	25
HOLT	17	1	18
ZABORSKY	29	2	31
WIEDENWALD	23	22	45
PADNINGTON BRIDEN	35	2	37
Series	410	54	464

ETIOLOGY. That is to say out of 500 cases 83.2% were females

Sex Incidence.

It is generally conceded that the occurrence of coli-uria, is very much more common in female children than in male, though Jeffrey⁽⁴⁾ thinks that this preponderance is less marked in the first year of life, three out of his seven cases being males. Kerley⁽⁵⁾ quotes all his cases as being female and the following figures of various observers are instructive:

	FEMALE	MALE	TOTAL
CROPE	32	8	40
RAMSEY	25	0	25
MORSE	30	20	50
JEFFREYS	53	7	60
ABT	21	1	22
STILL	39	3	42
ESCHERICH	10	0	10
TRUMPP	21	8	29
FINKELSTEIN	7	0	7
THOMSON	21	4	25
BOX	17	1	18
ZAHORSKY	39	3	42
FRIEDENWALD	58	22	80
PADDINGTON GREEN	43	7	50
Series	416	84	500

That is to say out of 500 cases 83.2% were females and 16.8% were males.

Age Incidence.

Most observers find the disease commoner under the age of 2 years for instance Zahorsky⁽⁶⁾ quotes 30 ex 42 as under 1 year and Ramsey⁽⁷⁾ 22 ex 25 as under 2 years. All Kerley's⁽⁵⁾ cases were under 4 years and in the Paddington series 30 were over 2, 26 females and 4 males, 20 were under 2, 17 females and 3 males.

Still⁽⁸⁾ remarks that all his male cases were under 1 year, but Jeffrey⁽⁴⁾ does not think there is any special age incidence in either sex.

Seasonal Incidence.

There does not seem to be any especial seasonal incidence, though the frequent occurrence after diarrhoeal diseases renders autumn if anything the commonest time.

Bottle-fed babies are, according to Thomson⁽⁹⁾ more frequently affected than breast fed, thus 21 ex 25 cases were bottle-fed.

Hygienic surroundings seem to have very little influence as cases frequently occur where these are excellent.

PREDISPOSING CAUSES.

Firstly any congenital malformation of the urinary tract will render a child liable to this disease as it will to any other. Ritchie⁽¹⁰⁾ gives as etiological factors of pyelitis

- (1) Irritation by drugs and calculi
- (2) Septic spread from the bladder
- (3) In the course of infectious diseases.
- (4) Primarily due to B. Coli.

In the last group the condition is often due to injury of the Bowel wall and in Ritchie's case (Case V.) he attributes the infection to a crack at the anus and the increased virulence of the B. coli brought about by absence of Bile. In support of this he quotes Posner Cohn and Marcus who have shewn by animal experiment that B. Coli can pass into the circulation but that they do so in direct relation to the morbidity of the bowel, hence anything injuring the bowel wall or increasing the virulence of the organism increases the liability to Pyelitis.

In 1893 Wreden injured the rectum of rabbits and they got cystitis and Thomson⁽⁹⁾ quotes 9 cases which were sore about the anus and had streaks of blood in the motions.

Escherich, Trumpp and Morse⁽¹¹⁾ note digestive disturbances as the predisposing factor.

All Kerley's cases followed digestive trouble and the following figures are instructive.

	TOTAL	WITH HISTORY OF DIGESTIVE TROUBLE.
CROFF	40	40
THOMSON (a)	25	12
ZAHORSKY (6)	42	20
RAMSEY (7)	25	9
JEFFREY (4)	60	34
PADDINGTON	<u>50</u>	<u>20</u>
GREEN		
	242	135

That is 55.8% had definite history of digestive disorders.

Jeffrey⁽⁴⁾ further points out that the right kidney is more frequently affected than the left, thus in 12 cases the right kidney only was affected and in 3 cases the left only, and remarks on the close association of the right kidney with the ascending colon appendix and caecum. He draws attention to the fact that stercoral ulcers tend to occur in the caecum and ascending colon and concludes that this is the region most damaged in constipation.

He quotes a case (Case) where at post mortem examination the hepatic and splenic flexures were markedly congested and Hutinel⁽¹²⁾ points out that the congestion of the rectum and bowel in diarrhoeal diseases causes congestion of the bladder and that the

diarrhoea causes a diminution of the amount of urine and these two factors result in a concentrated stagnant fluid in the bladder which is an excellent culture medium for the organism. That some lesion of the bladder e.g. congestion of the mucous membrane, was necessary to induce a cystitis was shewn by Caccia⁽¹³⁾ who injected cultures of B. coli into puppies with healthy bladders and got no cystitis.

A diseased appendix adherent to the right kidney as in the case quoted by Hutchison⁽¹⁴⁾ may be the cause of the infection.

It is interesting to note that Trumpp examined the urine in 16 cases of gastro-enteritis without urinary symptoms, and got B. coli in 13, nine of whom were females and Dudgeon⁽¹⁵⁾ in 20 cases of chronic constipation without urinary symptoms got B. coli and pus in two, and B. coli in 2 out of 20 cases of acute peritonitis.

Box⁽¹⁶⁾ has noted B. Coli in the urine in cases of thread worms and thinks that the parasites may be directly responsible for the transference of the organism to the bladder, and Bond⁽¹⁷⁾ supports this view.

Previous illness by lowering the vitality of the child and possibly by causing a change in the condition and composition of the urine⁽⁹⁾ will often induce an infection of the urinary tract and it is noticeable

that when this comes on in the course of an infective disease, the organism which attacks the urinary tract is the *Bacillus coli* and not the specific organism of the disease.

Thursfield⁽¹⁸⁾ has noticed a transitory pyuria in the course of convalescence from Scarlet Fever, Diphtheria, Pneumonia etc., which passes off on restoration to health.

Fischer⁽¹⁹⁾ has found tonsillitis as a common precursor of coli-uria.

With regard to statistics available, we have the following:

	TOTAL	HISTORY OF PREVIOUS ILLNESS
JEFFREYS ⁽¹⁴⁾	60	10
RAMSEY ⁽⁷⁾	25	3
ZAHORSKY ⁽⁶⁾	42	5
PADDINGTON GREEN	<u>50</u>	<u>10</u>
	177	28

i.e. out of 177 cases 15.8% followed some previous illness.

Local Causes are regarded by most observers as unimportant though Zahorsky⁽⁶⁾ regards simple vaginitis as more important than gastro-enteritis, but although this has received special attention, it is seldom reported.

Other local causes have been quoted in the

literature such as the presence of calculus⁽²⁰⁾ or the operation of circumcision^(9 and 21) but it has been pointed out that the latter will aggravate a pre-existing coli-uria & it is suggested that in these cases quoted it existed previously unsuspected. Wolfstein⁽²²⁾ thinks that the passage of excess of Uric acid crystals in the first few days of life may irritate the urinary tract and so serve as a predisposing factor.

A case has been cited⁽²⁰⁾ in which a boy of 14 acquired a B. coli cystitis after filling his bladder with water by means of a syringe used for giving his sister enemata and of course any sepsis in the course of instrumentation of the bladder or ureters may easily set up an infection of the tract.

As to the question of how the urinary tract becomes infected there are three possible routes:

- I. Conveyance of the organism by the blood stream
- II. Direct spread by the lymphatics
- III. Ascending infection via the Urinary tract.

As regards the first route of spread some observers favour this view and there are some experiments to support it, viz:

Charles⁽²³⁾ describes experiments on rabbits in which the urinary tract was injured and then B. coli were injected into the blood stream, producing lesions similar to those found in human infections. Sampson,

experimenting on dogs, concludes that a normal kidney can excrete B. coli from the blood without harm to itself, but any occlusion to the ureter or damage of the kidney will cause infection and points out how often post-mortem examination shows dilatation and constriction of the ureters in human subjects.

However as Morse⁽²¹⁾ points out the B. coli is not often found in the blood in pyelitis and frequently when present in the blood is not present in the urine, hence it is unlikely that the normal kidney secretes organisms at any rate in the human subject.

Of course the fact that pyelitis may exist where there is no cystitis, seems to support the theory of descending infection, but it is a well-recognised fact that the uninjured bladder mucosa is very resistant to the attacks of organisms. Another experiment supporting the theory of blood infection is that of Posner and Cohn⁽²⁵⁾ who tied one renal artery but not the other of a rabbit. They then injured the rectum and found that there was a pyelitis in the kidney with the free artery while the other kidney was not affected. On the other hand against this theory we have the fact that Escherich, Wunchbneimer and others have repeatedly examined the blood for B. coli in cases of Coli-uria with no result. And also the fact that there are never any pyaemic foci elsewhere in the body.

The theory of direct spread has many supporters,

notably Jeffrey⁽⁴⁾ who remarks on the fact that the right kidney is closely connected with the colon, caecum and appendix which are the first regions of the bowel to be effected by intestinal derangements and notes the large number of cases which follow gastro-intestinal disturbances.

However against this theory we have the experiments of Brown⁽²⁶⁾ and others who tied the rectum and urethra of a rabbit and found *B. coli* in the kidney but were unable to find it in any of the peritoneal tissue even after the most careful search.

This direct route was regarded as the usual one in males as the anatomical conditions are not favourable to the ascending route, but that infection may occur by the latter means is shewn by the case quoted by Leopold and Levi⁽²⁰⁾ where a boy infected himself with an enema syringe and by a case quoted by Luetscher where a man acquired an infection with *B. Lactis aerogenes* from his wife, which started as a uretheritis and eventually involved the whole tract.

The ascending route is upheld by most observers supported as it is by the preponderance of cases in female babies where the short wide urethra may easily become infected from the bowel discharges on their napkins.

Jeffreys,⁽⁴⁾ however, does not agree with this as

he points out that in the first year of life all little girls' vulvae are infected by discharges and according to his figures the preponderance of females is less marked in the first year of life than it is later, and he regards the fact that the bladder is often affected before the kidney as inconclusive evidence.

That it is possible for ascending infection to occur has been shewn by Bond⁽¹⁷⁾ who related how pigment granules placed on the mouths of the ureters ascend against the current and are found in the pelvis of the kidney. As to how ascending infection takes place Sampson has made thorough investigations.⁽⁴⁴⁾ He points out that it may occur by way of lymphatics at the sides of the ureters or by the ureteral channels. Using injections of lamp black he failed to establish a lymphatic connection between the bladder and the kidney.

The normal anatomy and physiology of the ureters very effectually prevent material from ascending them, but injury to the ureteral orifice may render this patent and allow of the entrance of organisms, or the infection may extend through the ureteral wall and so along the lumen, the resulting ureteritis causing a stricture of the ureter, stagnation of the urine and infection of the kidney. Again, he quotes Orth and Jacobelli who uphold the possibility of organisms

travelling up the ureter by their own efforts and lastly there is the possibility of reflux up the ureters. He does not think this is possible in the normal case, but if ureteritis has converted the ureter into a rigid tube, then there may easily be a reflux from an over-distended or forcibly contracting bladder, which will tend to keep up the infection.

From these observations he urges that great care should be exercised in instrumentation of the bladder to avoid injury to the ureteral orifices.

Classification of the types of Coli-uria.

Thomson⁽⁹⁾ classifies the condition on the basis of the urine, viz:-

(1) Bacilluria; urine acid, offensive; contains *B. coli* but no pus. No subjective symptoms except enuresis and frequency of micturition.

(2) Cystitis. Pus and *B. coli* in acid urine with dysuria and slight frequency but little or no illness or distress.

(3) Pyelitis, a similar urine but there are rigors and a high remittant temperature with serious general disturbance and great distress.

(4) Suppurative nephritis, Urine similar but with more albumen and some casts. There are severe general symptoms and more cachexia than in (3). This

results in great exhaustion and if the kidney is much involved death will occur. It may be primary or secondary to pyelitis.

Hutchison⁽¹⁴⁾ gives a similar classification describing the fourth group as a combination of the symptoms of acute nephritis, pyelitis and cystitis.

Herringham⁽²⁸⁾ classifies the condition on a basis of symptoms, viz:

- (1) Acute types as in adults.
- (2) Subacute without pain or rigors but with unexplained pyrexia wasting, anaemia, loss of appetite and general malaise.
- (3) Remittent with attacks of fever, vomiting, and headache separated by intervals of health.

This seems a very serviceable classification from the clinical standpoint and Thursfield⁽¹⁸⁾ gives a similar one.

Jeffrey⁽⁴⁾ gives a classification on the basis of age, viz:

- (1) In the 1st year of life which may be mild or severe and often ends in death.

- (2) Over one year.

(a) Mild, a history of some interference with micturition; the patient is pale, wasted, has an earthy tint of the skin, has attacks of fever accompanied by pain and tenderness and generally by constipa-

tion. Such attacks usually end in two or three days but may go on to enlargement of the kidneys. They usually run a chronic course but may clear spontaneously.

(b) Severe. May begin with trouble of ~~urination~~ or pains in the loins. There may be gastro-enteritis or meningism, and they often end in uraemia after extensive emaciation.

SYMPTOMATOLOGY.

From the point of view of symptoms, the most important classification is that into Acute and Chronic.

In the acute cases the symptoms and signs may be divided into five groups viz:-

General

Cerebral

Pulmonary

Abdominal

Urinary.

In a great many cases there are no physical signs, and the frequent absence of any indications of urinary trouble renders the condition particularly difficult to diagnose, and it is often impossible to tell how much of the tract is involved.

Thus out of 60 cases described by Jeffrey⁽⁴⁾

37 were brought for bladder symptoms
3 for diarrhoea and vomiting
9 for abdominal pain
5 for meningeal symptoms

4 for debility
2 had no symptoms.

In 30 of these there was definite pyelitis, 50% of Abt's cases had urinary symptoms, and in 8 out of 25 of Ramsey's⁽⁷⁾ patients the symptoms pointed to the bladder.

There is usually a leucocytosis of from 12000 - 24000 while Porter and Fleischner report a case where it rose to 37000 and Lenholtz has noted it as low as 3000 - 4000.

ONSET

In the acute cases the onset is usually sudden, but Thomson⁽⁹⁾ points out that in almost all cases the urine has had an offensive smell for some days before the sudden onset.

The infection is sometimes ushered in by rigors a point on which much stress has been laid by Thomson⁽³⁾ as they are very uncommon in children apart from this condition. He regards it as distinctive of an ascending infection as he has not seen it occur in boys where the infection is probably not an ascending one, however a case in which a boy suffered from rigors has been reported by Kent.⁽³¹⁾

Fifteen out of twenty-five of Thomson's⁽⁹⁾ cases had rigors, 5 slight and 10 severe while two others had convulsions following what may have been rigors.

According to Vanderhoof⁽³²⁾ the rigors are due

to blocking of the ureters since he has noticed a definite increase in the amount of pus after the rigors.

Still⁽⁸⁾ mentions blueness and collapse as a symptom which if accompanied by fever is almost pathognomonic of pyelitis.

Two of Thomson's⁽⁹⁾ 25 cases had fainting attacks accompanied by general rigidity, a mode of onset also noticed by Miller⁽³³⁾. Convulsions are regarded as exceptional by Still⁽⁸⁾ who only observed them in 3 ex 28 cases, while Thomson⁽⁹⁾ found them in 2 ex 25.

(a) General Symptoms.

The temperature rises suddenly often to a considerable height 105 - 106 and then if no treatment is administered swings with large variations often falling or rising 6 to 8 degrees in a few hours.

The chart often resembles that of typhoid while in other cases Malaria is simulated with regular intermissions. At other times there is no regularity about the temperature, and it may be subnormal for a day or two and then suddenly rise again to 105. It is important to note that the child is not nearly so ill as the severity of the fever would seem to warrant and directly it falls the child is perfectly ready to play and indeed Zahorsky⁽⁶⁾ describes a case in which the child was ready to play even when the temperature was 105. The pulse and respirations are raised with the

temperature but are not usually excessively rapid, though in the group with pulmonary symptoms the respiratory rate may be very high.

There is almost always marked restlessness and irritability and these points are often valuable aids to diagnosis.

(6)

Profuse sweating may occur though Zahorsky regards this as uncommon.

The child frequently emaciates but not rapidly: as a rule it is pale and has a toxic appearance, though it may be flushed during pyrexial periods.

There is often general muscular tenderness and handling is strongly resented, so that proper examination is difficult.

(b) Cerebral symptoms.

At times cases are brought with symptoms which point to intracranial mischief, the best example of which is the case described by McCrae⁽³⁴⁾ (Vide Case XX) **And** of Thomson's⁽³⁾ first 8 cases three were delirious and 2 squinted.

The patients are often somnolent or even comatose and there is often some neck rigidity and Kernig's Sign may be present, though the latter is rare.

The extreme irritability and screaming attacks are also suggestive of meningitis for which the condition is often mistaken.

(c) Pulmonary symptoms.

Some cases present symptoms suggesting the onset of pneumonia having marked tachypnoea, though as a rule there is no respiratory distress, but in Case XXVIII the child is represented as having an expiratory moan. Physical signs are absent as a rule though there may be some indefinite congestion of one or other lung and a few rales which may confuse the diagnosis. c.f. Case XXX

(d) Abdominal symptoms.

The onset may be attended by severe colicky pains which are ascribed by Porter and Fleischner⁽³⁰⁾ to ulceration of the ureters. There is also frequently vomiting and obstinate constipation though in a few cases there is diarrhoea.

Most observers agree that the appetite is lost early, though Thomson⁽⁹⁾ states that this may be retained.

Friedenwald⁽³⁵⁾ describes jaundice in severe cases but this is not usually described. In a few cases the spleen may become enlarged after a time.

(e) Urinary symptoms.

Often there is severe pain in the region of the kidney involved, which is usually the right. But Box⁽¹⁶⁾ points out that the pain is more usually subcostal than lumbar.

The kidney may be large and palpable and this feature tends to vary from time to time, like a hydro-

nephrosis and there may be considerable enlargement without much pain.⁽¹⁶⁾ If the kidney substance is involved there is oedema of the face, hands and feet.

The Bladder symptoms are usually referable to the hyperacidity of the urine, ⁽³³⁾ and usually consist of enuresis, frequency, and slight straining during the act, but there may be marked dysuria, only a few drops of urine being expelled at a time, the child screaming violently the while, and there may be marked pain and tenderness in the hypogastric region. If not treated these acute symptoms may die down for a day or two to suddenly reappear when the child seems to be recovering.

Chronic cases may be subdivided into two groups:

I. The Intermittent type

II. The truly chronic type.

In the intermittent type a child who is usually in perfectly good health and able to play about normally with other children is from time to time seized with sudden attacks of vomiting, fever, headaches and lassitude which closely resemble an acute attack. These attacks may occur at intervals of a month or more and the condition may last for years if untreated, there being nothing to call attention to the urinary tract if the urine is not examined.

The truly chronic cases occur in older children and have a gradual onset, though Zahorsky⁽⁶⁾ declares

that a history of febrile disturbance may always be obtained if sufficiently careful enquiry is made.

There may be some incontinence first which may not persist but the child becomes pale, emaciated and anaemic.

(36) Durante thinks that the anaemia is due to specific haemolysis formed by the B. coli and experiments have been done on rabbits into which B. coli of low virulence were injected with the result that an anaemia of the pernicious type was established with poikilocytosis and nucleated red cells.

There may be slight unexplained elevations of temperature which persist for a long time and the child who is sickly and languid may complain of pains in the joints. From time to time there are attacks of headache, vomiting, and nausea but no rigors or convulsions.

There may, in these cases, be enlargement of the liver and spleen.

Box⁽³⁷⁾ describes a transitory fidgetiness which resembles chorea. If not treated, these cases go on for years and may end in anaemia, and where cystitis is present there may be marked hypertrophy of the bladder though there is no obstruction to the outflow.

THE URINE. *scope but B. coli are obtained on cultivation.*

I have purposely left the question of the condition of the urine till now, since in a sense it is common to all the varieties of cases described above, though this is not strictly true since the urine varies according to the severity and extent of the infection of the urinary tract, and further the urine from the same case varies from time to time, so that one specimen must not be relied upon for a diagnosis. Baginski describes a case illustrating this point, in which the morning specimen was free from albumen and pus, while the afternoon one contained quantities of albumen pus and casts.

Dudgeon⁽¹⁵⁾ has classified the types of urine as follows: *condition. The specific gravity varies from 1.020 to 1.030 in acute cases but low in chronic cases.*

(1) A quite clear urine from which the B. coli can be obtained on cultivation. *always highly acid.*

(2) Urine in which B. coli are seen microscopically, and in which he notes there are always one or two leucocyte cells to the field in a centrifugalised deposit. *the urine becomes alkaline on standing but*

(3) Similar to (2) but containing a deposit of leucocytes showing that some definite inflammation is present.

(4) Pyuria + Bacilluria, both pus cells and Bacilli seen microscopically. *Alkaline in some cases though there may*

(5) Pyuria when pus cells only are seen by the

microscope but *B. coli* are obtained on cultivation.

In appearance the urine is usually turbid and this turbidity is not removed by heating or filtering.

Where there is a bacilluria only the urine may present a glistening, shimmering or opalescent appearance.

At times the urine is perfectly clear and at others there is a copious deposit of pus and mucous.

The smell is offensive but this is not ammoniacal since *B. coli* can't split up urea, but of a fishy nature said by Jeffrey⁽⁴⁾ to be due to methylamin.

The urine stains the child's napkins a brownish yellow and this may be the first thing to call attention to the condition. The specific gravity varies from 1010 - 1020 and Monte of Vienna maintains that it is high in acute cases but low in chronic cases.

The Urine is occasionally **neutral** and very rarely alkaline⁽¹⁵⁾ but is almost always highly acid.

The acidity may be estimated by titrating it against Decinormal Sodium Hydroxide 25 cc of which is needed to neutralise 100 cc of normal urine.⁽²⁶⁾ Thomson⁽⁹⁾ notes that the urine becomes alkaline on standing but Wassermann⁽³²⁾ has kept a specimen for two months and found it still acid.

CHEMICAL CHARACTERS.

Albumen is practically always present though there may be only a very faint trace. It of course varies with

the amount of pus and according to Brown⁽²⁶⁾ there is more albumen in pyelitis than in cystitis. If the kidney substance is involved the amount of albumen may be very considerable.

Dudgeon⁽¹⁵⁾ and Box⁽¹⁶⁾ have described a nucleoprotein as being present but do not regard it as pathognomonic of the condition.

Pus may or may not be present in sufficient quantity to be demonstrated chemically and it tends to vary greatly in amount which Thomson⁽⁹⁾ ascribes to blocking of the ureters. He also notes that in some cases there may be no pus when the temperature first rises but that it appears in the course of a few days.

Blood may occur in small quantities in very acute cases or as in a case described by Thomson where there had previously been scurvy. Abt⁽²⁹⁾ describes the presence of Indican, and Dudgeon⁽¹⁵⁾ a substance which reduces Fehling's solution in cases which have been treated with Urotropin.

Acetone occurs in acute cases and in the acute stages of the remittent type.

MICROSCOPICAL CHARACTERS.

Leucocytes which, according to Dudgeon, are always present even in cases of pure Bacilluria.

Pus cells in varying amounts and in various stages of disintegration. In this connection Still⁽⁸⁾ recommends

that uncentrifuged specimens should be examined as we may thereby more accurately determine whether the pus is increasing or diminishing in amount.

Epithelial cells from all parts of the urinary tract may be found the predominating variety indicating where the inflammatory process is most acute.

Crystals may be present as in normal urine and Thomson⁽⁹⁾ has described two cases where urates and oxalates were excreted before the onset of pyuria.

Tube casts are not usually described though, as Jeffrey remarks,⁽⁴⁾ they may be overlooked. According to Abt⁽²⁹⁾ they may be present at first especially if the urine is scanty, but in uncomplicated cases these do not amount to more than a few of the hyaline variety. If, however, the kidney substance is involved, there may be epithelial blood and pus casts as well as hyaline.

Bacilli are frequently seen microscopically and these are usually extracellular though according to Dick⁽³⁹⁾ the leucocytes take them up more readily in an alkaline urine. They always present a beaded appearance if stained with Carbo-Thionine⁽¹⁵⁾

Cultural Characters. profuse growth of the B. coli or one of its allies can be obtained on the ordinary media.

PATHOLOGY.

As the condition of coli-uria seldom ends in death, unless the kidney substance is involved, there is not a great deal of material from which to draw conclusions as to its pathology. However there are a few cases described in which the child died of inter-current disease and a few in which cystoscopic examination was carried out in the living subject.

With regard to organs outside the urinary tract there is as a rule no change except some cloudy swelling of the liver in severe cases though Jeffrey⁽⁴⁾ describes a case in which the flexures of the large bowel were congested.

In cases of pure Bacilluria and mild pyuria, nothing is found at the autopsy and there may be slight reddening and injection of the bladder wall as seen by the cystoscope but according to Keys⁽⁴⁰⁾ bacilluria is a definite sign of a catarrhal change somewhere, though it may be slight, and this is borne out by the fact that Dudgeon⁽¹⁵⁾ always found a few leucocytes in cases of bacilluria.

This catarrh is, however, quite transitory and leaves no trace, as is seen in a case quoted by Thiemal⁽⁴¹⁾ which died after the illness had lasted for six weeks and no morbid changes were found at the post mortem.

In the more serious cases where there are definite

pathological lesions, the whole tract from the pelvis of the kidney to the bladder is affected, thus in 19 autopsies of severe cases described by Thiemal⁽⁴¹⁾ 15 showed changes in pelvis ureter and bladder, 3 in the kidney only and 1 in the bladder only.

The bladder wall as seen at autopsy or by the cystoscope in life is congested and may be ulcerated though this is not as a rule marked. However a case described by Zahorski⁽⁶⁾ had numerous small ulcers extending right through the urinary tract from ureters to urethra (vide Case VIII).

In chronic cases the bladder wall may become very much hypertrophied though there has been no obstruction to the outflow of urine.

The ureters are generally found to be irregularly dilated and to contain pus. The mucous membrane shows catarrh or may be the seat of definite inflammatory changes.

The pelves are dilated and contain pus. The mucous membrane may be simply catarrhal or may be thickened and oedematous, streaked, with dilated and tortuous capillaries or the seat of numerous punctiform haemorrhages. When the kidney substance is involved the organ is large and soft with maybe only a serous infiltration and parenchymatous cloudiness.

In more severe cases the kidney is enlarged, the capsule strips easily disclosing a mottled surface,

the dark areas being intensely congested and the pale areas being the bases of degenerating infarcts with necrotic centres. The kidney substance is found to be the seat of numerous abscesses which radiate as fine lines from the pelvis to the cortex or the whole organ may be riddled with small abscesses. In chronic cases the kidneys may be cystic. On microscopic examination the chief change is usually found in the tubules which are dilated, irregular, and may contain clumps of organisms. The glomeruli are as a rule less affected though in chronic cases there may be a definite nephritic condition pervading the whole organ.

BACTERIOLOGY.

By far the commonest cause of urinary infection in children is the *Bacillus coli* or one of its allies, and with the streptococcal and staphylococcal infections I am not dealing at all.

The term *bacillus coli* however is apt to be used loosely: until quite recently a bacillus which was gram negative, motile, with lateral flagellae, 2-4 μ long by .5 μ thick, which stained in the cold by ordinary stains such as thionine blue or carbol, fuchsin, and which after 24 hours culture on agar showed large superficial colonies and small glistening deep ones, was termed *B. coli*.

Recently, however, it was found that many of the

organisms infecting the urinary tract did not give the characters of true *B. coli* and Cecchi⁽⁴²⁾ tested 7 cases of coli-uria by the agglutination test and found he was able to divide his cases into five groups any one of which would not respond to the agglutination tests of the others.

Besides the *B. coli* group, cases of infection by *B. proteus* have been described. Thus:-

Jeffrey⁽⁴⁾ 4 cases ex 60

Friedenwald⁽³⁵⁾ 2 cases ex 80.

Also of Gaetner's *Bacillus*:-

Jeffrey⁽⁴⁾ 2 ex 60

Paddington Green Series 1 ex 50.

Further Abarran and Cottet noted the frequency of anaerobic organisms in urinary infections and strongly urge that a urine should not be pronounced sterile till these have been excluded.

With regard to the *B. coli* group the differences in cultural characters may be seen from the accompanying table.

Of these the *B. coli communis* is much the most common.

B. Lactis aerogenes is also described.

Friedenwald⁽³⁵⁾ 12 ex 80

Trumpp 1 ex 29

Paddington Green series 3 ex 50

In adults Heyse, Schmitzler, Warburg and Wildbolz each quote one case and Luetscher two.

The *Bacillus acidi lactici* of Huppe was found in ~~two~~ of the Paddington Green cases and Abt⁽²⁹⁾ describes a case of Shiga's bacillus.

The recognition of these various organisms is of the utmost importance with respect to vaccine treatment, since a stock vaccine of *B. coli communis* will have no effect on one of the other organisms of the group and further if Dudgeon's⁽¹⁵⁾ statement is true that the cultural characters of the organism change in the course of the disease this differential test should be applied frequently. The normal habitat of these organisms is the intestinal tract and Brown⁽²⁶⁾ has pointed out that more than half of normal urethras contain the *B. coli* or its allies. In these situations the organisms are non-virulent, but if they escape into the tissues growth there seems to increase their virulence especially if accompanied by inflammatory changes, for Mellin⁽⁴⁵⁾ showed by animal experiment that in cases of pure bacilluria the virulence is low. If cultures are injected into rabbits, if the virulence is high, the animal dies rapidly with general septicæmia and hæmorrhages into various organs. But if it is low they develop a fibrinous inflammation which becomes purulent if the animal lives long enough. In the urine

CULTURE REACTIONS OF COLI GROUP.

ORGANISM	GLUCOSE	LAEVULOSE	MALTOSE	GALACTOSE	ARABINOSE	RAFFINOSE	LACTOSE	CANE-SUGAR.	MANNITE	SORBITE	DULCITE	ADONIT	DEXTRIN.	STARCH.	INULIN	LITMUS MILK.	LIQUEFACTION OF GELATIN.	INDOL.	MOTILITY	GLUCOSE $\frac{O_2}{H}$	GAS PERCENTAGE IN GLUCOSE	VOGES-PROSKAUERS REACTION.
B. TYPHOSUS	A	A	A	A	-	A	-	-	A	A	-	...	A	-	-	A	-	-	+	...	...	-
B. COLI	+	+	+	+	+	+	+	+	+	+	+	-	+	-	-	AC	-	+	+	$\frac{2}{1}$	25	-
B. ENTERITIDIS	+	+	+	+	+	+	-	-	+	+	+	...	+	-	-	A Alk	-	+	+	$\frac{1+}{1}$	...	-
B. PARA-COLI (DAY).	+	+	+	+	+	+	-	-	+	A	A	...	+	...	...	A Alk	-	...	+	$\frac{1+}{1}$	...	-
B. PARA-TYPHOSUS. (SCHOTTMÜLLER).	+	+	+	+	+	+	-	-	+	+	+	...	+	...	...	A Alk.	-	...	+	$\frac{1+}{1}$	...	-
B. DYSENTERIAE (FLEXNER).	A	A	A	A	A	A	-	-	A	-	-	...	A	-	-	A Alk	-	...	-	...	...	-
B. DYSENTERIAE (SHIGA).	A	A	A	A	-	A	-	-	-	-	-	...	-	-	-	A Alk	-	+	-	...	...	-
B. ICTEROIDES. (SANARELLI).	+	+	+	+	A	+	-	-	+	+	A	...	+	-	-	A Alk	-	...	+	$\frac{1+}{1}$	...	-
B. SUICHOLOERAE	+	+	+	+	A	A	-	-	+	+	A	...	+	...	...	A Alk	-	...	+	$\frac{1+}{1}$	...	-
B. CAPSULATUS (PFEIFFER).	+	+	+	+	+	+	+	+	+	+	-	+	+	+	-	...	-	+	-	$\frac{2}{1}$	25	+
B. LACTIS AEROGENES.	+	+	+	+	+	+	+	+	+	+	-	+	+	+	-	AC	-	+	-	$\frac{2}{1}$	25	+
B. ACIDI LACTICI (HÜPPE)	+	+	+	+	+	+	+	-	+	+	-	+	+	-	-	AC	-	+	-	$\frac{2}{1}$	15-30	-
B. CLOACAE (JORDAN)	+	+	+	+	+	+	+	+	+	+	-	-	+	-	-	AC	+	-	+	$\frac{1}{1}$	75	+
B. PNEUMONIAE (FRIEDLÄNDER)	+	+	+	+	+	+	+	+	+	+	+	+	+	...	...	A ±C	-	+	-	$\frac{3}{1}$	30	-

A = acid production only.

C = Curdling of milk

A Alk. = first acid then alk.

+ = Acid + gas production or positive

- = no change in medium or negative

± = sometimes acid and gas production sometimes no change or sometimes positive sometimes negative.

see: Hewlett's MANUAL OF BACTERIOLOGY p354.

the organism is mostly extra-cellular and the chronicity of the disease seems to make no difference to the phagocytic index, but Houston and Dick(39) state that the leucocytes take up the bacilli more readily if the urine is rendered alkaline.

The organisms generally present a beaded appearance and aberrant long forms are seen. Culturally they yield a profuse growth but sometimes when the urine has been apparently sterile for some days the organisms reappear, and Hartwell and Streeter have shown that if the stirred sediment is poured over the culture media, growth may take place although none occurs by the ordinary methods of planting, and they urge that this should always be done before declaring the urine to be sterile.

DIAGNOSIS

The diagnosis of coli-uria is, of course, easy, once attention is drawn to the urine and if the urine is examined as a routine measure when a child is ill, and the physical signs are not quite sufficient to account for the state of the child's health, then it need never be missed especially if it is remembered that one examination of the urine is not sufficient and that complete examination includes the taking of cultures as well as microscopical and chemical observations.

So often, however, the physician has not time or the means to do this, and many cases are still missed. In differential diagnosis the chief difficulty lies in dealing with the acute cases which may, as seen above, present only general symptoms, only cerebral, only pulmonary, only abdominal, or, combinations of these.

Where general symptoms are present alone, one may suspect the onset of acute fever or influenza, or the presence of septicaemia or deep-seated tuberculosis. When the temperature is intermittent Malaria is simulated and where this is common, as in America, it often leads to difficulties in diagnosis, especially as in these cases there is sometimes enlargement of the spleen. But there are no plasmodia in the blood and as Vanderhoof⁽³²⁾ has pointed out Quinine does no good and this in itself is sufficient to distinguish the two. Where there are cerebral symptoms Otitis Media, Cerebro-spinal meningitis and in some cases tuberculous meningitis have to be excluded, but in Coli-uria the findings of the lumbar puncture are always negative.

Some cases e.g. Case XX certainly resemble meningitis very closely and in all probability these cases of T.B. meningitis which have been described as having recovered were really coli-uria. In the Respiratory group of cases the tachypnoea and the occasional presence of indefinite rales and congestion leads to a

diagnosis of pneumonia, but the signs never progress and there is seldom respiratory embarrassment though in Case this does occur.

In the abdominal cases Typhoid is of course the stumbling block, but the Widal reaction is negative in Coli-uria though Shaw⁽⁴⁷⁾ reports cases which in the fourth week of illness give a positive Widal with dilutions of 1 in 30 and 1 in 50 but never with 1 in 100.

There are no spots in Coli-uria and as a rule the spleen is not enlarged, though this may be so.

Acute gastro-enteritis may be simulated especially as coliuria is often ushered in with diarrhoea and vomiting.

Appendicitis is another difficulty and the general muscular tenderness may lead one astray into thinking one is dealing with acute peritonitis.

Even where there are urinary symptoms we must exclude calculus by X-ray examination and genito-urinary tuberculosis by bacteriological investigation, but these are rare in children.

In the chronic forms the wasting and slightly elevated temperature suggest some tuberculous infection, while the periodic type resembles cyclic vomiting or recurrent appendicitis, and it must be remembered that acetone may be present in the urine during one of the attacks of remittent coliuria.

While in all these cases a coliuria can be discovered by examination of the urine, we must not rest satisfied that we have explained everything just because there is pus in the urine.

Cystitis may accompany or be the terminal symptom of many conditions and Cases XVI & XVIII illustrate how a coliuria may supervene on other acute conditions. Even where there are definite urinary symptoms the real trouble may not be in the urinary tract, as for instance a pelvic appendicular abscess may press on the bladder causing great frequency and pain on micturition but rectal examination reveals the true state of affairs.

PROGNOSIS.

The prognosis with regard to life is good unless the kidney substance is seriously involved in which case the result is usually fatal. In cases, however, in which coliuria exists as a complication of other troubles, is undoubtedly a deterrent to recovery and may turn the scale in a critical case as in Cases XVI & XVIII.

As to cure the matter is difficult, in acute cases a certain proportion get better without treatment, in all cases suitable treatment should relieve symptoms unless as is mentioned above the kidney substance is seriously involved, but the complete

disappearance of pus and organisms from the urine is another matter and it must be remembered that while there is pus in the urine a child will always be, not quite up to the mark, easily tired, liable to gastro-intestinal disturbances, and further liable at any time to a relapse and as Zahorski⁽⁶⁾ has pointed out, this is specially so after an infectious disease, so that when a child has once had an attack of Coli-uria, his urine should be closely watched after such infectious complaints. Now as pus and bacilli may disappear from the urine for a time only to reappear again after some weeks, a case cannot be pronounced cured until

- (1) All symptoms have disappeared
- (2) The urine ceases to contain pus.
- (3) Cultures from a catheter specimen are sterile
- (4) Further cultures taken from catheter specimens three or four months later are also sterile.

When a case has once become chronic it is difficult to effect a complete cure and Pardoe⁽⁴⁸⁾ goes so far as to say that at any rate in adults chronic cases are incurable.

In children Jeffreys⁽⁴⁾ thinks that the prognosis is much worse under one year but this has not been borne out by other observers.

The figures quoted by Jeffreys from 60 cases treated at Great Ormond Street give a fair idea of how

these cases turn out.

21 were completely cured, i.e. all symptoms relieved and the urine sterile.

23 had the symptoms relieved but the urine still contained organisms

6 were in statu quo ante

9 died, 6 of urinary trouble, and 3 of inter-current diseases.

TREATMENT.

Prophylaxis may be dismissed shortly. Attention to cleanliness especially in baby girls, and the wiping of fecal material away from instead of onto the vulva are of paramount importance. Attention to any derangements of the gastro-intestinal tract or the presence of thread worms and prompt relief of these will lessen the chance of the passage of the bacillus coli through the bowel wall, while attention to general health will render the child more able to resist infection with the bacillus if it is present. Actual treatment resolves itself into several divisions.

I. Attention to the possible sources of infection.

(1) A deranged gastro-intestinal tract relieving any constipation and treating any diarrhoea or thread worms.

Jeffreys reports three cases in which appendicectomy was performed with resultant cure of the urinary

infection and certainly if there is any trouble in that region the appendix should be removed. Hutchison⁽¹⁴⁾ recommends that the colon should be washed out with large enemata and Cal. grs 1/10 given three times a day.

Sodium phosphate is useful as a purgative as it helps to render the urine alkaline.

(2) A vulvo-vaginitis if it exists should be treated by the usual methods.

(3) A calculus often keeps up irritation and its removal cures the cystitis.

(a) Local applications.

II. Administration of fluids in as large quantities as possible, especially alkaline and diuretic drinks of which imperial drink is a useful example.

In acute cases patients sometimes refuse all fluids by the mouth, and they may have to be given by a stomach tube or in the form of large saline enemata.

III. General tonic treatment. The patient must be helped to throw off the infection by the exertions of his own tissues and probably all cases acute and chronic do the better of some stimulation.

In acute cases brandy is the best and in chronic an emulsion of Cod Liver Oil with hypophosphites of calcium and sodium.

The diet should be simple and light, and may

consist of milk diluted with alkaline waters, cereals, fruits, fruit juices and jellies.

IV. Treatment directed towards the actual infection.

This falls under four heads and they have been used separately by some observers but in combination with each other by most. These are

(a) Conversion of the reaction of the urine from acid to alkali

(b) Administration of urinary antiseptics

(c) Vaccine therapy

(e) Local applications.

(a) Conversion of the urine from an acid reaction to an alkaline one.

Although it has been pointed out over and over again that the natural habitat of the B. coli in the bowel is an alkaline medium, and that in vitro the organism flourishes as well or even better in an alkaline than in an acid medium, yet clinical observation has shewn that when the urine is rendered alkaline the symptoms are often immediately relieved and the temperature may fall by crisis. This important fact was brought prominently before the profession for the first time by Thomson⁽³⁾ in 1902, though the treatment had been administered by others before. While the

alkaline treatment is a very valuable symptomatic remedy it is only in a few cases that by this means alone the organisms are caused to disappear from the urine, and since it is a matter of observation that in some cases this is achieved without drug treatment at all we must not be too ready to conclude that the alkalies have this power.

Captain McCay kept a case under very close bacteriological observation while it was undergoing treatment, and he observed that while alkalies were being administered, and while the urine was alkaline the organisms were in no way impaired either with regard to mobility or growth on culture media, but all the symptoms were relieved, the temperature fell to normal, and the child was restored to health, therefore he concludes that the alkalies neutralise the toxins liberated by the bacilli, but have little or no action on the bacilli themselves. However that the alkalies may have some action on the bacilli is shewn by the statements of Dick⁽³⁹⁾ and Houston quoted above, concerning the increased phagocytic activity of the leucocytes in an alkaline medium.

This is very important as it is a remarkable fact that as a rule almost all the bacilli are extra-cellular and as Dudgeon (15) has pointed out the chronicity of the disease in no way effects the phagocytic index.

The conclusions one would come to, then, with

regard to alkaline treatment are: that it is a very valuable symptomatic remedy, neutralising the toxins so as to relieve symptoms but as a rule it does not, unaided, ensure a complete cure, though by increasing the phagocytic power of the leucocytes it may promote the achievement of this end.

As to the methods of administration it is usually given in the form of Potassium citrate and potassium acetate starting with doses of grs v. of each, every 2 hours, and rapidly pushing it up until the urine is rendered strongly alkaline.

(8)
As Still pointed out, it is no use unless given frequently as the urine must always be kept alkaline without intermission and he recommends two hourly administrations.

Cases vary very much in the time taken to render the urine alkaline and the amount of alkaline necessary to do so. Thomson⁽⁹⁾ gives 4 - 5 days as the usual time, in some cases 1 - 3 days, rarely 6 - 7 days. As to dosage this must be pushed until the urine is alkaline and if the pot. cit. causes diarrhoea substitution of Soda bicarbonate will keep up the alkalinity of the urine.

Thomson⁽⁹⁾ has pointed out that there is a tendency for the reaction of the urine to become acid again 3.7 days after it becomes alkaline; therefore the alkali should be kept up in full doses for at least 10 days

after the temperature has fallen.

If there is much bladder irritation x - xv of Tr Hyascyam: may be combined with the alkaline with advantage, and if the child will not swallow the alkaline by the mouth McCaw has noted that it is quite as efficacious given by the bowel. Lippe⁽⁵⁰⁾ has found a combination of Potassium acetate and infusion of digitalis very useful in those cases where a pure alkali was not efficacious.

Lastly Thomson has noted that where the kidney substance is affected alkalies are of no use and where there is a mixed infection with staphylococci and streptococci they do harm rather than good.

(b) Urinary Antiseptics.

Before discussing the application of these drugs in coliuria it is interesting to record some experiments by Jordan on the growth of the B. coli in urine.

He experimented with his own urine taking the various drugs by the mouth.

(1) He found that B. coli would grow in urine of a much higher acidity and a much higher alkalinity than is ever found in the body.

(2) The growth of B. coli in an alkaline urine was not affected by the administration of urotropin.

When the urine is highly acid, however, urotropin is split up and forms formaldehyd which entirely inhibits the growth of B. coli.

(3) Sandalwood oil does not deter the growth of *B. coli* though it markedly affects staphylococci.

(4) With salicylic acid *B. coli* did not grow quite so well, but there was not much effect.

(5) Benzoates increase the acidity of the urine and cause *B. coli* to grow much less actively.

⁽⁵¹⁾ Gulland, however, points out that none of the so-called urinary antiseptics do much good since they cannot be given in large enough quantities to produce a sufficiently concentrated solution in the urine, and they are very much altered in the process of elimination.

(d) Urotropin. ⁽⁵²⁾ Benzoate, Cl. Santalin and

Captain McCay⁽⁴⁸⁾ continuing his experiments mentioned above on the subject of alkalies found that while urotropin was administered, there was marked diminution in the activity of the organisms and that they gradually ceased to form colonies on the culture media, and certainly Urotropin seems to be the one member of the group which does good according to most observers.

However it has been shewn that urotropin has no action in an alkaline medium, how then can the fact be explained that cases do well and are often cured on a combination of urotropin with alkaline ? ⁽⁵³⁾ of an Indian

Possibly the urotropin may act at first in the

urine which is often very highly acid, not killing the organisms but so weakening them that when the urine becomes alkaline the leucocytes which are aided by this in their phagocytic powers, are enabled to overcome the organisms. Thursfield⁽¹⁸⁾ speaks highly of urotropin in doses of grs v. x + i. d.

(B) Helmitol, a derivative of urotropin which is said to act in an alkaline medium but which has not been found of much value by those by whom it has been given a trial, but it might seem reasonable to substitute it for urotropin where the urine becomes definitely alkaline.

(C) Salol, Ammonium Benzoate, Ol. Santalin and Methylene blue have all been recommended by some observers, but the successes with these drugs have been infrequent, and when it is remembered that some cases recover spontaneously, too much weight must not be attached to these cures.

Abt⁽³⁹⁾ found in one case that minimum doses of Guaiacol resulted in a cure when all other methods had failed.

The action of urinary antiseptics then seems at best uncertain and undoubtedly the best of them is urotropin and it may be of interest to note that according to Easte's⁽⁵²⁾ the addition of grs iij of an iodide renders them more efficient.

(c) VACCINE THERAPY.

In this country vaccines have given but indifferent results on the whole. Dudgeon⁽⁴⁴⁾ has employed them largely in adults and finds that while the phagocytic action is increased by them they are useless in acute cases and of no great value in chronic.

In children it is difficult to find any definite statements in the literature; some observers have met with success, where other methods had failed while others again have seen no good results. All however seem to agree that no bad results accrue. The doses recommended are 10 millions to start with going up to 50 or 100 millions administered once a week or once a fortnight.

In America however the results seem to have been very different. Many observers report excellent results and while there are some dissentients notably Hartwell⁽⁴⁶⁾ and Geraghty the majority seem to think highly of the treatment. In looking for a reason for this difference of opinion between English and American observers, one is at once struck with the difference in dosage. Americans, even in the case of quite young children, start with from 20 to 50 millions and administering it twice a week go up to 400 millions, or as Billings⁽⁴⁷⁾ has recommended, until there are marked local and general reactions. The local reaction is characterised by redness, tenderness and swelling of the skin

over an area 1 - 2 " square, which begins 1 - 2 hours after injection reaching a maximum in 12 - 18 hours and disappearing in 48 - 72 hours.

The general reaction is characterised by malaise aching of muscles, bones and joints, headache and fever which may be accompanied by rigors and leucocytosis. This occurs in from 2 to 12 hours after injection and will be much more severe if the patient is not in bed. Billings notes, however, that vaccines will do no good if there is any stagnation of urine anywhere in the tract.

In treating with vaccines it must be remembered that the vaccines must be autogenous since as has been seen all cases are not true B.coli and according to Dudgeon⁽¹⁵⁾ an organism may change its characters in the course of an illness.

Serum has been used with fair results in acute cases in adults by Dudgeon⁽¹⁵⁾ and Box⁽¹⁶⁾ but this line of treatment does not seem to have been applied to children.

(d) Local applications are not of much importance in this condition.

In acute cases Holt⁽⁵⁴⁾ recommends poulticing or cupping the kidneys, while where there is an acute cystitis with much tenesmus Ramsey⁽⁷⁾ recommends washing out the bladder with a .5% solution of silver

nitrate, neutralising it immediately with salt solution. Box⁽¹⁶⁾ and Dudgeon⁽¹⁸⁾ found that irrigation of the bladder with anti-coli serum in adults reduced the pus in the urine in a remarkable degree but the effect was only transitory.

In chronic cases Jeffrey⁽⁴⁾ and Hutchison⁽¹⁴⁾ recommend washing out the bladder with Iodoform emulsion.

Lastly a case is reported from Australia by Boyd of a girl aged 5 years who suffered from coluria with severe symptoms of bladder irritation which were unrelieved by alkalies antiseptics, or vaccines, but which eventually yielded to hypnosis.

In conclusion it is interesting to note the results described by Jeffreys⁽⁴⁾ who does not believe in a special line of treatment, in 14 untreated cases, and to record the methods which were adopted in the 20 cases which were cured.

Of the 14 untreated cases -

- 1 was cured
- 2 had symptoms relieved
- 5 were in statu quo ante.
- 6 died. Three from intercurrent diseases.

Of 20 cases cured

- 4 got bladder lavage only
- 1 alkalies by mouth only

5 antiseptics only

1 vaccines only

9 combinations of the above.

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A. ACUTE

I. With general symptoms.

- | | |
|---------------------------------|-------|
| (1) Cases from literature | 1-12 |
| (2) Cases from Paddington Green | 13-18 |

II. With cerebral symptoms.

- | | |
|---------------------------|-------|
| (1) Cases from literature | 19-25 |
|---------------------------|-------|

III. With Pulmonary symptoms

- | | |
|---------------------------------|-------|
| (1) Cases from literature | 26-30 |
| (2) Cases from Paddington Green | 31-34 |

IV. With Abdominal symptoms

- | | |
|---------------------------------|-------|
| (1) Cases from literature | 35-41 |
| (2) Cases from Paddington Green | 42-45 |

V. With Urinary symptoms

- | | |
|---------------------------------|-------|
| (1) Cases from literature | 46-50 |
| (2) Cases from Paddington Green | 51-54 |

B. CHRONIC

1. Intermittent

- | | |
|---------------------------------|-------|
| (1) Cases from literature | 55-59 |
| (2) Cases from Paddington Green | 60-64 |

2. True Chronic

- | | |
|---------------------------------|-------|
| (1) Cases from literature | 65-70 |
| (2) Cases from Paddington Green | 71-75 |

A girl aged 2 1/2 was suddenly taken ill with fever
and The series of 100 cases have been arranged as follows:

A. ACUTE

I. With general symptoms.

- | | |
|---------------------------------|-------|
| (1) Cases from literature | 1-12 |
| (2) Cases from Paddington Green | 13-18 |

II. With cerebral symptoms,

- | | |
|---------------------------|-------|
| (1) Cases from literature | 19-25 |
|---------------------------|-------|

III. With Pulmonary symptoms

- | | |
|---------------------------------|-------|
| (1) Cases from literature | 26-30 |
| (2) Cases from Paddington Green | 31-36 |

IV. With Abdominal symptoms

- | | |
|---------------------------------|-------|
| (1) Cases from literature | 37-42 |
| (2) Cases from Paddington Green | 43-49 |

V. With Urinary symptoms

- | | |
|---------------------------------|-------|
| (1) Cases from literature | 50-60 |
| (2) Cases from Paddington Green | 61-83 |

B. CHRONIC

I. Intermittent

- | | |
|---------------------------------|-----------------------|
| (1) Cases from literature | 84-89 |
| (2) Cases from Paddington Green | 90- 100 91 |

II. True Chronic

- | | |
|---------------------------------|-----------|
| (1) Cases from literature | 92 - 94 |
| (2) Cases from Paddington Green | 95 - 100. |

S.J.GEE. B.M.J. Nov. 1883

A girl aet. 9/12 was suddenly taken ill with fever and lassitude. No cause could be discovered until the nurse noticed curious staining of the napkins. The urine was saved, and found to contain pus but nothing else unusual. There was no trouble with micturition.

The urine remained purulent for some weeks and since she recovered and is now well.

Illustrates the absence of symptoms pointing to the location of the disease, except the peculiar staining of the napkins and also that the child recovered without special treatment.

cells.

For the next 8 days the urine was milky in appearance and contained albumen, pus and epithelial cells, a few R.B.C., and very few hyaline casts. It was usually sold in reaction but twice alkaline.

For three days she was sore all over the body but there was always marked and definite tenderness over the left kidney.

On the 3rd day of this stage there was definite swelling of the face, feet, and hands, and the child was pale and depressed but not wasted.

She was restless at times and at other times very

II
and always passed after waking.

WEST ARCHIVES of PEDIATRICS 1909.

the urine was more in amount and contained less pus.

A girl aet 10/12 was taken ill with symptoms suggesting croupous pneumonia, but there were no physical signs at first. These however developed on the 5th day of the illness and the crisis occurred on the next day the 6th day of illness. ~~times a day and passed 4-12 motions.~~

The urine at this time was passed freely, had a strong odour and stained the napkin. On the evening of the day of the crisis the temperature rose to 103 and continued raised, swinging markedly. The urine was now less in amount and had not such a strong odour.

With some difficulty a specimen was obtained, which was highly acid and contained albumen and some pus cells. ~~Real requiring codain to keep her quiet.~~

For the next 8 days the urine was milky in appearance and contained albumen pus and epithelial cells, a few R.B.C., and very few hyaline casts. It was usually acid in reaction but twice alkaline. ~~is normal.~~

For three days she was sore all over the body but there was always marked and definite tenderness over the left kidney.

On the 3rd day of this stage there was definite swelling of the face, feet, and hands, and the child was pale and depressed but not wasted. ~~the blood vessels~~

She was restless at times and at other times drowsy

and always dazed after waking.

From the 13th to the 15th day she was better and the urine was more in amount and contained less pus.

On the 16th day there were sudden severe gastric intestinal and uraemic symptoms which continued till death 8 days later.

During this period the temperature was not raised. She vomited 12-24 times a day and passed 4-12 motions. At this time severe vulvo-vaginitis developed there having been no trace of it previously. The urine was less in amount. It still contained pus but more albumen and a few hyaline and epithelial casts. It was always neutral.

The kidney was palpable from 19th to the 21st day. Towards the end she was very restless and screamed a great deal requiring codein to keep her quiet.

At the post mortem, the kidney surface showed spots of distended capillaries, the pelvis was thickened and rough, and the kidneys weighed 80 and 72 grams respectively, compared to 30.1 gms, the normal.

Microscopic examination showed a suppurative nephritis and in and between the tubules clumps of coliform bacilli.

The glomeruli were not so much affected as the tubules, and this fact along with the fact that bacilli were found in the tubules and not in the blood vessels favours an ascending infection.

This case illustrates several points of which the chief are

- (1) Onset after acute disease
- (2) General muscular tenderness.
- (3) Drowsiness.
- (4) Increase of albumen where the kidney became involved.
- (5) Death from suppurative nephritis.

A peculiar feature about it was the fact that the urine twice became alkaline.

The temperature was intermittent for 3 weeks.

The blood showed a leucocytosis of 24,400.

The urine showed a trace of albumen pus and B.Celli

and was acid.

Was given Pot.Bic.

Pot Acet. ad. gr. v. 4 hourly

Later vaccines were given and the child was cured.

This case presented no guiding symptoms and was only diagnosed by examination of the urine.

Vaccines seem to have been responsible for the complete cure.

III
MRCRAE, PRACTITIONER, 1910.

A girl aet. 15 months.

Three weeks ago had a screaming attack and the temperature went up to 101.4 and varied very much. Pneumonia was diagnosed 5 days ago the temperature fell to 96 and has not risen again. rise of temperature. When seen

A well-developed child who resented handling, no respiratory distress. Slightly impaired resonance over the right base, otherwise nil found. to have some fre-

quent. The temperature was intermittent for 3 weeks.

The blood showed a leucocytosis of 24,400. us, and

culture. The urine showed a trace of albumen, pus and B.Coli and was acid. coli were green. His Temperature continued

to be. Was given Pot.Cit. al rigors. The boy, looked very

Pot Acet. ad. grs.v. 4 hourly

ill and did not look as if he would recover. Uretropin
Later vaccines were given and the child was cured.

grs.v. was given without much effect
This case presented no guiding symptoms and was
On March 24th 10,000,000 B.Coli were given. The
only diagnosed by examination of the urine.
temperature rose to 104, then suddenly fell to 95 with

collapse of the patient. A few hours later he had a
Vaccines seem to have been responsible for the
complete cure.

rigor and the temperature rose to 106°. On recovering
from this, another 10,000,000 were given, and this was
followed by relief of all symptoms. On April 3rd a third
vaccination was performed, the dose in this case being
15,000,000, after which the temperature rose to 103, it
then fell however, and the boy progressed steadily

IV
thereafter, all pus and bacilli disappearing from the urine.
KENT, PRACTITIONER, 1910.

able from the fact that the boy had a rigor, a feature
which Boy aet. 8. declares he has not met with in the male

On March 17th the boy was brought home from school
having been ill for 10 days. There had been other cases
of influenza and the illness had been supposed to be
that, owing to sudden rise of temperature. When seen
was developing signs of acute otitis media. Paracentesis
was done and the signs subsided, but the temperature con-
tinued to swing. He then was noticed to have some fre-
quency of micturition and the urine was examined.

This was found to, be alkaline, to contain pus, and
cultures grew a pure strain of B. Coli, later however a
few staphylococci were grown. His Temperature continued
to swing and he had several rigors. The boy, looked very
ill and did not look as if he would recover. Urotropin
grs.v. was given without much effect

On March 29th 10,000,000 B.Coli.were given. The
temperature rose to 104, then suddenly fell to 95 with
collapse of the patient. A few hours later he had a
rigor and the temperature rose to 106°. On recovering
from this, another 10,000,000 were given, and this was
followed by relief of all symptoms. On April 3rd a third
vaccination was performed, the dose in this case being
18,000,000, after which the temperature rose to 105, it
soon fell however, and the boy progressed steadily

thereafter, all pus and bacilli disappearing from the urine.

A case successfully treated by vaccines and remarkable from the fact that the boy had a rigor, a feature which Thomson declares he has not met with in the male

Girl, age 7 1/2 months

A pale child with constipated bowels.

On 14th July had a rigor in the early morning. When seen the temperature was slightly above normal and nothing was found on physical examination. The child was constipated and passed pale motions, sometimes streaked with blood. A small fissure was found at the anal margin. The breath sounds were clear but faint, the chest was resonant on percussion.

Micturition was normal.

Urine, acid, clear, no albumen on rough test given Spiritus Aetheris Nitrosi, and Tr. Belladonna.

On 18th had another rigor and Soda Sal. grs j. 2 hourly was substituted for first mixture.

21st Temperature was normal and soda sal. was stopped, but on 22nd temperature was 101, so it was resumed. The temperature varied from day to day, and when it was low the child was well, when high very restless and rapid breathing.

Dr J. Thomson saw the case and suggested Pyelitis and the urine was examined afresh; it was found to be very clear containing a trace of albumen pus and bacteria ++. No casts. Given pot:cit: grs j 2 hourly to be increased till urine alkaline or neutral. Milk to be very dilute.

V
JAMES RITCHIE, 1 Case, vide SCOTTISH MEDICAL &
SURGICAL JOURNAL.

Girl, aet 7/12 months .

A pale child with constipated bowels.

On 14th July had a rigor in the early morning. When seen the temperature was slightly above normal and nothing was found on physical examination. The child was constipated and passed pale motions, sometimes streaked with blood. A small fissure was found at the anal margin. The breath sounds were clear but faint, the chest was resonant on percussion.

Micturition was normal.

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Dr J. Thomson saw the case and suggested Pyelitis and the urine was examined afresh; it was found to be very clear containing a trace of albumen pus and bacteria ++. No casts. Given pot: cit: grs j 2½ hourly to be increased till urine alkaline or neutral. Milk to be very dilute.

On 26th more uneasy, given Soda Sal.grs $\frac{1}{2}$, 2 $\frac{1}{2}$ hourly
On 27th and 28th Rigors after which temperature fell
till Aug. 3rd when it rose again till August 9th when it
again became normal.

On July 28th urine was neutral but potassium seemed
to depress the child so dose was diminished. Some ten-
derness over the kidney was observed about this time

The child began to pick up after August 9th but pus
remained in urine for a long time, however in October
the child was well and urine showed no organisms.

The interesting points of this case are the rigors
and the anal fissure which Ritchie regards as the source
of infection. Alkaline treatment although it removed
the symptoms did not at any rate at first cure the
patient. three weeks.

The resemblance of cases such as these to malaria
is misleading but they do not react to quinine and have
not got a leucocytosis.

VII

LIPPE, ARCHIVES OF PEDIATRICS.

fever with evening rise continuing for some weeks, but

not. A girl aet. 9/12; for three months had suffered from intermittent fever accompanied by rigors. Under the impression that the case was malaria she was treated with quinine but without effect.

She became pale and emaciated.

The blood showed a negative Widal and a leucocytosis.

The urine contained pus and albumen.

She was put on Urotroppin without any effect and then onto Pot. Acetate and Infusion of Digitalis, which cured her in three weeks.

The resemblance of cases such as these to Malaria is misleading but they do not react to quinine and have not got a leucocytosis.

FISCHER, ARCHIVES PEDIATRICS 1907.

A case much resembling malaria with intermittent fever with evening rise continuing for some weeks, but not relieved by quinine.

On physical examination an enlarged spleen was discovered otherwise nothing. The blood on examination showed a polymorph leucocytosis and no plasmodia could be seen in the film. The urine showed albumen pus cells R.B.C. and a few hyaline casts and epithelial cells. The addition of an enlarged spleen and the other malarial symptoms made the diagnosis very misleading.

From the pelvis to the urethra, the mucous membrane of the tract was very congested and pigmented. There were minute circular or elliptical ulcers in enormous numbers, some shallow and some punched out. B.C.G. was obtained on culture.

The kidney substance was unaffected.

The ulcerated condition of the mucous membrane is not elsewhere described.

ZAHORSKY, PEDIATRICS 1908.

STEPHENS, INTERCOLONIAL MEDICAL JOURNAL, 1908.

A girl, aet. 8/12, was taken ill with a temperature ranging between 103 and 106 and nothing else was found on physical examination.

The urine showed albumen R.B.C. numerous pus cells, some epithelial cells and hyaline casts. The child after two weeks illness died suddenly with a temperature of 107.

Nothing was found on post mortem examination, except in the urinary organs.

From the pelvis to the urethra, the mucous membrane of the tract was very congested and pigmented. There were minute circular or elliptical ulcers in enormous numbers, some shallow and some punched out. B.Coli was obtained on culture.

The kidney substance was unaffected.

The ulcerated condition of the mucous membrane is not elsewhere described.

STEPHENS, INTERCOLONIAL MEDICAL JOURNAL, 1908.

On December 8th, 1898, saw a girl set 3/12 who had been ill 3 days. She was bottle-fed, and had no previous illness. There had been a sudden onset of chill and high fever which fluctuated between 102 and 104. No other symptoms. There was no prostration. On examination the temperature was 101.4 and the tongue was furred, but nothing further was discovered. The urine on examination was turbid and had a glistening sheen. It was acid in reaction. It contained a trace of albumen, a few pus cells and numerous organisms. On observing more closely the child was seen to have some steaming and frequency of micturition.

The duration of the illness was 9 weeks, after which the child recovered and during the time the urine was acid or neutral. At first the pus tended to increase in amount.

A mild case without much pyuria.

Urine obtained on December 8th showed very acid reaction. A trace of albumen and pus ++ Microscopically pus and epithelial cells, no casts, no tenderness over kidneys, no signs of cystitis or vaginitis.

Micturition normal.

Given pot. alt. grs 1/2 hourly.

10th December, temperature fell naturally.

Urine more copious and neutral.

12th December: Temperature reached normal.

X
Urine much increased in quantity and decidedly alkaline,
contains pus and epithelial cells, and a few hyaline

HOLT. Archives Pediatrics, Vol XI. and the general

condit II. On December 6th, 1892, saw a girl aet 8/12 who
had been ill 9 days. She was bottle fed, and had no
previous illness. There had been a sudden onset of
chill and high fever which fluctuated between 102
and 106. No other symptoms. There was no prostration
but occasional green stools and slight cough. No
evidence of pain, no cerebral signs, no vomiting.
Pneumonia was suspected but no signs developed. Quinine
was given without any effect and baths reduced tempera-
ture only for a time.

On examination. Temperature 105, pulse 180,
Respiration 76. Nothing found on physical examination
no signs of pneumonia. Child does not seem very ill
unless temperature is high.

Urine obtained on December 8th showed very acid
reaction. A trace of albumen and pus ++ Microscopi-
cally pus and epithelial cells, no casts, no tenderness
over kidneys, no signs of cystitis or vaginitis.

Micturition normal.

Given pot. cit. grs ij 2 hourly.

10th December, temperature fell naturally.

Urine more copious and neutral.

12th December: Temperature reached normal.

Urine much increased in quantity and decidedly alkaline, contains pus and epithelial cells, and a few hyaline casts. Has had no further symptoms and the general condition is good.

Rapid improvement from this time, and three weeks later pus had practically disappeared from the urine.

In April 1894 the urine was clear of pus and the child in excellent health.

Small doses of alkaline in this case seem to have effected a cure.

History. Bottle fed baby, has had mild digestive troubles, but no definite diarrhoea and vomiting.

Child took suddenly ill on December 4th was drowsy and towards evening feverish. The breathing was rapid and he frequently screamed out in pain.

No delirium, fits or rigors.

The abdomen was swollen and tender, but nothing else was made out of the physical signs.

The child was restless and miserable. It seemed to have no pain on micturition. Remained in such the same condition till admission.

A thin child. Temp. 102, pulse 130.

Tongue clean, abdomen distended, no rigidity, or tenderness, no enlargement of liver or spleen.

Leucocytosis of 35,000 of which 204 were polymorphs.

Nothing found except a few white

DR JOHN THOMSON, vide Quarterly Journal of Medicine
Vol. 3.

I. Boy aet. 7/12.

Home conditions and family history excellent.

Admitted December 7th, dead December 20th.

Complaint: drowsiness, fever and abdominal pain
of three days duration.

Previous History. Bottle fed baby, has had mild
digestive troubles, but no definite diarrhoea and
vomiting.

Child took suddenly ill on December 4th was
drowsy and towards evening feverish. The breathing
was rapid and he frequently screamed out in pain.

No delirium, fits or rigors.

The abdomen was swollen and tender, but nothing
else was made out of the physical signs.

The child was restless and miserable. It seemed
to have no pain on micturition. Remained in much the
same condition till admission.

A thin child. Temp. 103, pulse 130.

Tongue clean, abdomen distended, no rigidity, or
tenderness, no enlargement of liver or spleen.

Leucocytosis of 36,000 of which 90% were polymorphs.

Nothing found except a few yonchi

For the next few days was feverish and restless but took food well.

A lumbar puncture was performed and nothing pathological found with regard to the fluid.

On December 14th the urine showed pus and bacilli and was acid in reaction.

10 grs. of Pot. Cit. was given every 2 hours.

On December 15th, this was given four hourly.

On December 18th urine became alkaline, but pus was as before, and the child was decidedly weaker. It got weaker and weaker, and the child eventually died on December 20th.

Post-Mortem.

Nothing pathological was found except in urinary system, and some cloudy swelling of the liver.

Bladder showed moderate catarrh, no definite cystitis. Left ureter congested mucosa and dilation. Right Ureter slightly dilated, contained some muco-pus. Left kidney was large, flabby and soft. The surface was pale. The stellate veins were engorged and there were several clusters of pyaemia foci, most quite small but one was $\frac{1}{2}$ " in diameter.

The Cortex was swollen and pale.

Pyramids engorged with radiating hues of suppuration extending into superficial cortex, the deep cortex contained necrotic foci, the apices of the papillae were engorged. The pelvis was slightly dilated with

engorged mucous membrane showing small areas of haemorrhage.

The right kidney was similar but did not seem to be so far advanced in the necrotic process as the left. Microscopically it showed a diffuse suppurative nephritis.

The absence of pyaemia foci elsewhere and the general distribution of the infection seemed to point to an ascending infection rather than a haematogenous one.

The inefficiency of treatment where the kidney is seriously involved is well illustrated.

Except for the slight abdominal pain there was nothing to point to infection of the urinary tract.

XII

DR PARKINSON. Case, vide CLINICAL JOURNAL, 1911.

Girl brought in with a temperature of 103° which had been swinging up to this figure or 104 for three days.

On examination nothing found but slight tenderness over one kidney.

Two days later the fever abated, but returned again in a week, when the urine was examined, and found to contain B.Coli in great numbers.

Treatment was successful, and child made an uninterrupted recovery.

Except for the slight abdominal pain there was nothing to point to infection of the urinary tract.

XIII

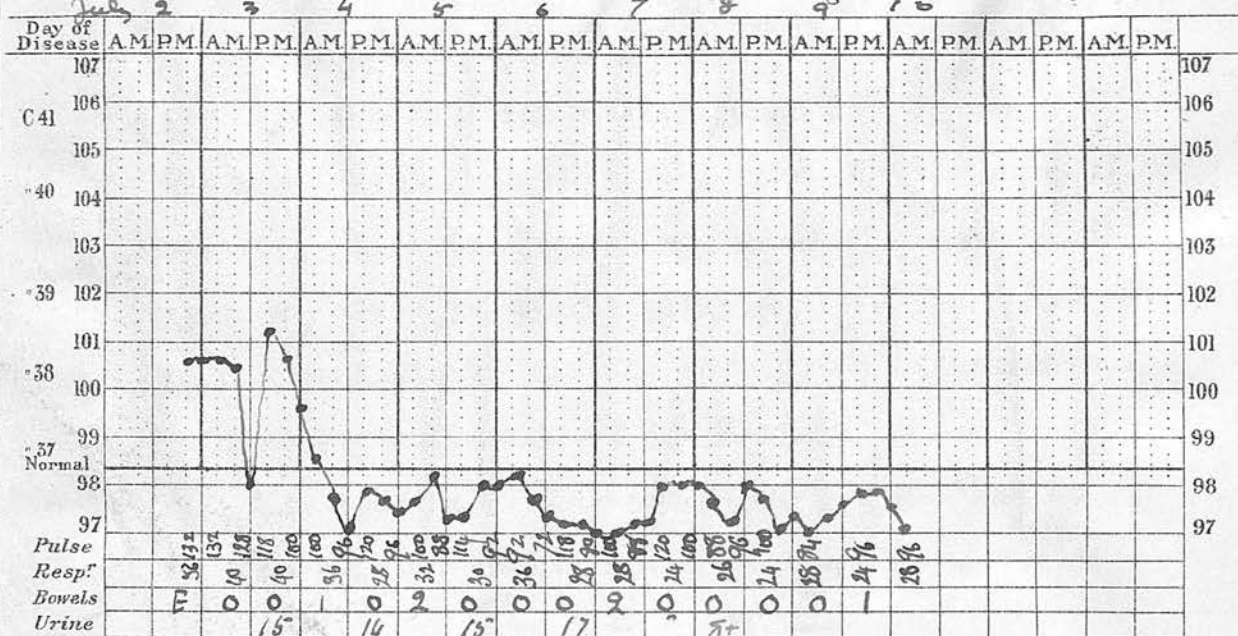
Sheet No. 12,
Walker's Medical
Loose-Leaf Book.

NAME Alvin Pleshad

Disease

Age

Result



...disease...
 ...cough and...
 ...normal...
 ...cough...
 ...of...
 ...History...
 ...admission...
 ...profusely...
 ...a little...
 ...and deep...
 ...in right...
 ...tongue...
 ...nothing...
 ...of left...

Urine, acid, trace of albumen, T. 100.6
A.P. aet 5 1/12 Girl. 25 Brookside Road, Highgate.

Admitted July 2nd, 1907, discharged July 10th.

On 25th June the child seemed out of sorts in the morning with no appetite. She went to school, however, but on returning had a rigor, lasting thirty minutes, after which she sweated profusely. She was in bed most of the day and complained of headache and pain in the left side on coughing.

Has been much the same since but has had no further rigors, bowels moved well on first two days of illness, but have been confined since.

Previous Health. A rickety baby, measles aet. 3 Whooping cough and pneumonia six months ago, since when never been well, better for a few days then relapsing. A slight cough constant nocturnal enureses and diurnal when out of sorts.

Family History unimportant.

On admission a healthy looking child, flushed and sweating profusely T. 100.6

Abdomen a little distended, tenderness elicited on light and deep palpation; definite tenderness and rigidity in right iliac region and hypogastrium.

Tongue furred and breath offensive.

Nothing important in lungs or heart, a few creps at base of left lung.

Urine, acid, trace of albumen, Pus + No casts.
Later found to contain a trace of blood, a substance
reducing *Fehling* Acetone and diacetic acid.

Given *Qz* Ac. Nit. Dil m v

Tr. Hyoscyam m xx
Inf. Scoparii ad j fid.

On the treatment the child was relieved of all
symptoms and the urine cleared up except for a few
pus cells.

Interesting in respect to the rigors and the
sweating which Zahorsky considers unusual.

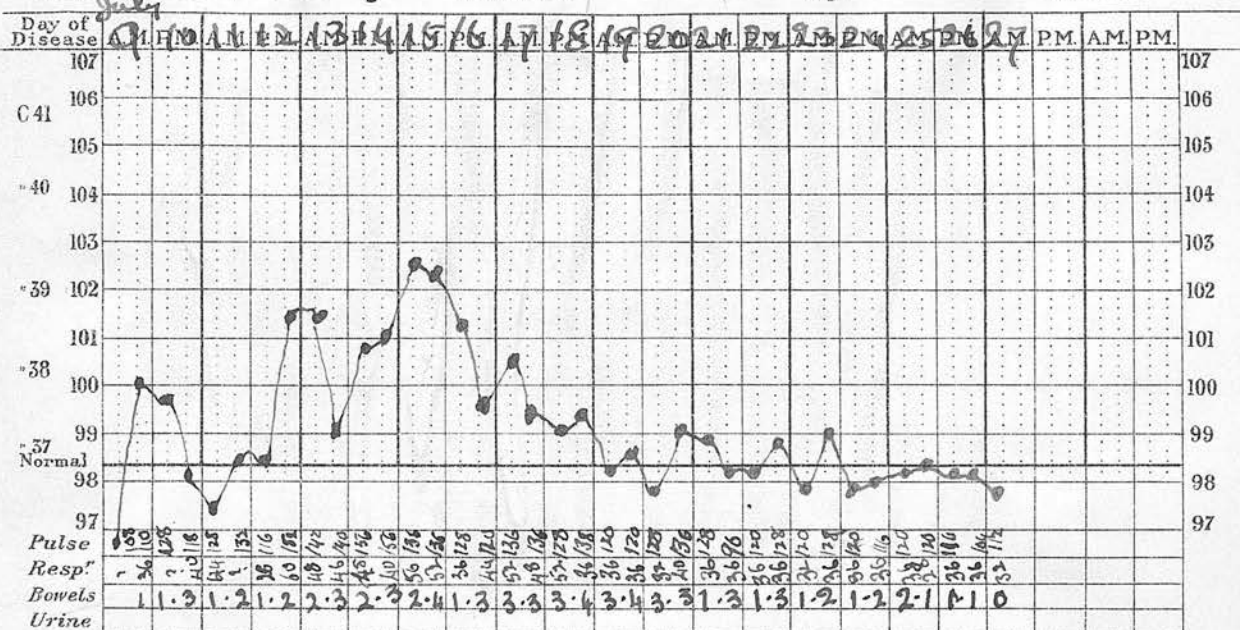
The case recovered well though not on any of
the usual treatments.

NAME Frank Tolley

Disease

Age

Result



FRANK TOLLEY aet. 7/12.

109 Warwick Avenue.

Admitted 9th July, 1909. Dischd. 27th July 1909.

Complaint: wasting and convulsions.

About 7 weeks ago began to have convulsions and has had them on and off since.

Has attended hospital for 7 weeks but no improvement has resulted. Child has been gradually wasting all the time. The bowels have been regular and there has been no vomiting.

Previous health and family history unimportant.

On admission. Child is pale with prominent eyes. He is a good deal wasted.

Liver much enlarged down to umbilicus.

Spleen also enlarged, but less so than liver. Blood R.B.C. 2,500,000 H₂O₂ 65% W. 14,000. Nothing in chest to be made out.

Urine acid, albumen. Blood ++

Microscopically Casts granular, hyaline and epithelial, pus cells and R.B.C.

Given Pot. Cit grs xv

15th. Child is very much the same, but is passing more urine than it did. Still alb. pus, and blood. The right kidney is enlarged and palpable.

4th July. The right kidney is still palpable but not so much enlarged as it was. The urine only

contains a trace of blood, and albumen now and there is less pus than there was. Still some casts.

The child has developed a crop of septic spots.

27th July. Very much better, the urine is almost clear of pus and the septic spots have disappeared. Discharged.

Was readmitted from 9th to 16th October for an attack of diarrhoea, when he was found to be much better and stouter and the urine was normal.

Again in November had diarrhoea and albuminuria, but no pus in urine, eventually recovered well.

Case with kidney substance involved which recovered convulsions are not very frequently observed.

MARY DAWSON, aet 5 4/12.

56 Knightshill, W. Norwood.

Admitted to hospital 11th January 1912. Discharged 20th January.

Complaint. Child looks ill and has had a swinging temperature for six weeks. See chart. The child herself has not complained.

History. Six weeks ago began to have slight pain and inflammation of the throat and the temperature was 105.

Adenoids had been removed three weeks previously. Two or three days later had severe pain in the back lasting about 12 hours. The temperature has been swinging ever since, but has been a little more settled since Sunday.

The bowels have been confined and there has been some difficulty in micturition. The appetite has been very poor and has needed much coaxing.

Previous health. Whooping cough aet 4.

Family history. Father a & w. Mother a & w.
2 children a & w. one miscarriage at 2 months, first pregnancy.

Child pale and somewhat anaemic.

Nothing to note on physical examination, except slight cardiac irregularity.

Urine: (Catheter specimen)

Urine faintly acid.

No albumen.

Microscopically: amorphous phosphates, epithelial cells, a few "ghosts" of red cells. Pus cells few in number, but grouped in clumps. No casts seen.

Organisms.

Culturally: typical B. coli + a shortstrained streptococcus.

A blood examination showed

R.B.C. 4,030,000

W.B.C. 10,500

H.C. 62%

C.I. 77

Poikilocytes a few seen.

No nucleated rods.

Differential count:

Polymorphs	79)	
Small lymphs	17.2)	
Large mononuclears	1.6)	
Transitionals	1.6	)	per cent.
Eosinophiles	.4)	
Mycocytes	.2)	

Vulvo-vaginitis was present and showed:

Organisms a gram + coccus

A gram - and a gram + bacillus.

Given Fish diet, misto, Cascara \mathfrak{zj} + i. d. Barley water
1 pint per diem.

13th January: no marked pyrexia since admission very constipated.

Urine still acid, contains pus and a long motile bacillus.

15th. Urine acid cloudy, pus present.

Child takes well and is bright and happy.

The bowels acting well.

Given Soda Bicarb. Pot. Cit. aa grs x. t.i.d

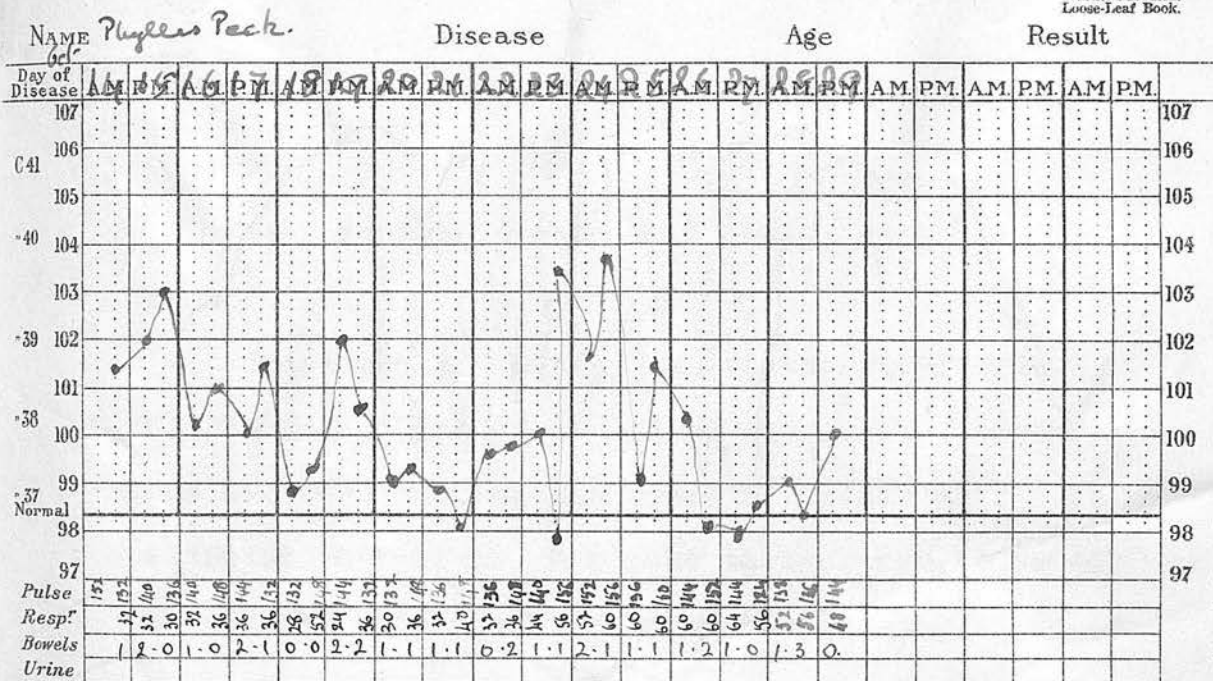
17th Above given 4 hourly.

18th. Urine clear.

20th. Discharged child much better, but there is a lot of pus in the urine given 20 grs each of Soda Bicarb. & Pot. cit. 4 hourly.

10th February. Dr reports that there has been no further rise in temperature and the child is very well but the urine is still cloudy and at times very offensive.

Not a complete cure since pus still in the urine. The presence of a vulvo-vaginitis as a possible causative factor is interesting.



On admission T. 101.5 P. 120 R. 32

The apex beat is 15 cm. from external to the nipple. There is a systolic murmur; the pulse is rapid with marked sinus irregularity. She is decidedly cyanosed. She complains of pain.

The urine is acid and contains traces of albumen and pus and casts. The growth of the teeth is good.

She was given Aspirin 5 gr. T. I. I. and Pot Cit. 5 gr. T.

On 10th she was given B. Salicylic 5 gr. T.

She was given

Pot. Cit. 5 gr. T. 4 hourly.

PHYLLIS PECK, aet 6 $\frac{3}{4}$

Admitted on October 14th, 1912, died October 29th.

Complaint of wasting and shortness of breath. Six weeks ago had an attack of Bronchitis, since when she has been wasting and short of breath on the least exertion. At night her nose is inclined to be stuffed up and she gets blue. Four weeks ago complained of rheumatic pain in the thigh.

On admission T. 101.4 P. 120 R. 24

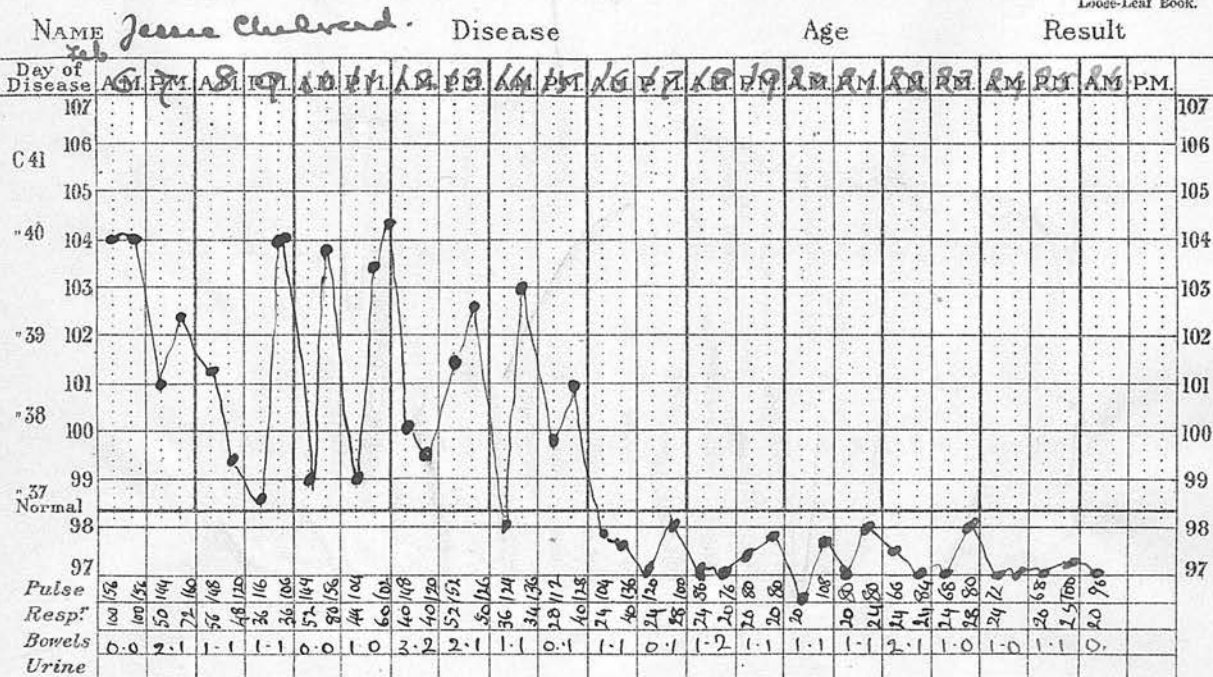
The apex beat is 1 $\frac{1}{2}$ fingers breadth external to the nipple. There is a systolic murmur; the pulse is rapid with marked sinus irregularity. She is decidedly cyanosed. She complains of pain.

The urine is acid contains acetone, traces of albumen and pus and culturally gives a copious growth of B. coli.

She was given Asparin grs V. t.i.d and Pot Cit. grs x.
On 19th was given B. Soda Sal. grs v.
Soda Bicarb.
Pot. Cit cc grs v. 4 hourly.

She continued to suffer very much from cardiac embarrassment and finally she developed failure of the left ventricle with dilatation enlarged liver and oedema of the bases of the lungs. The urine became alkaline on the 24th, but this did not affect the temperature in the usual way although it returned to normal for two days before death. No Post-mortem was allowed.

Here Coliuria complicated serious cardiac trouble; this was not so bad, however, but that at first one was inclined to hope for recovery and one was impressed by the idea that the accompanying coliuria turned the scale against the child.



Temp. normal. She has been very drowsy. Prostration
 illness, mental & motor rest.
 Family History unknown.
 A strong, well-developed child, somewhat emaciated.
 W. 104 K. 104 H. 35.
 Good retraction of the intercostal spaces and
 there are definite parasternal signs at the right apex.
 Heart and lungs normal.
 Some trace of albumin. Otherwise nothing to note.
 The pneumonia picture is secondary course and the
 temperature came down to 98.0 on the 5th, but the
 fever has risen again and has continued to swing,
 rising to 103 or 104 at
 On the 12th the temperature has again left an offen-

JESSIE CHELVERD aet 1 4/12.

12, Church Place, Paddington Green.

Admitted 6th February 1913, discharged 26th February.

Complaint: cough and pains in the stomach of 4 days duration.

The child had never been well since she had measles 3 months previously, and has wasted ever since. Four days before admission the child was sick and she became feverish. The breathing became rapid and difficult, and the child complained of abdominal pains. The urine was high coloured and had a bad odour. The motions were normal. She has been very drowsy. Previous illnesses, measles 3 months ago.

Family History unimportant.

A strong, well nourished child, somewhat cyanosed.
T. 104 P. 164 R. 68.

Some retraction of lower intercostal spaces and there are definite pneumonic signs at the right apex.

Heart and abdomen normal.

Urine trace of albumen, otherwise nothing to note.

The pneumonia pursued an ordinary course and the temperature came down by crises on the 8th, but the next day it rose again to 104, and continued to swing, rising to 103 or 104 at night.

On the 12th the urine was found to leave an offen-

sive odour, and though nothing was found microscopically or chemically, on cultivation, colonies of B. Coli were obtained.

The child meanwhile did not seem distressed and had made a good recovery from the pneumonia.

On the 15th she was given Pot. Cit grs v. t.i.d the temperature fell on the 16th not to rise again and on the 26th the child was discharged in excellent health with the urine sterile.

A complete cure by alkalies of a bacilluria following pneumonia.

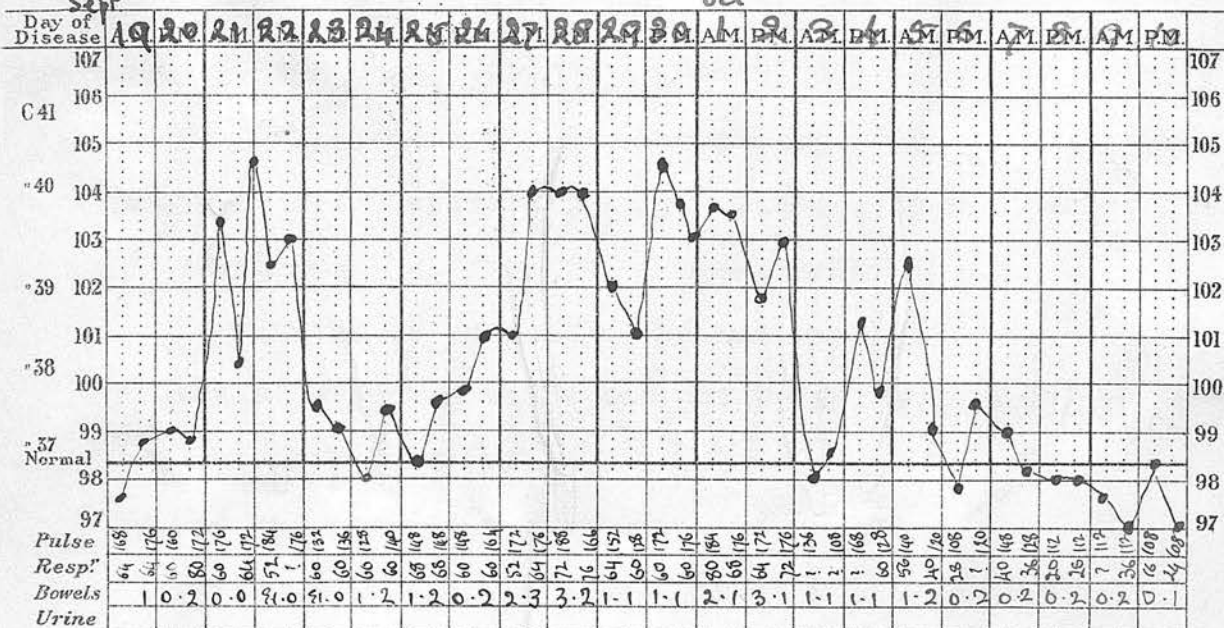
NAME *Kellie Robinson*

Disease

6ct

Age

Result



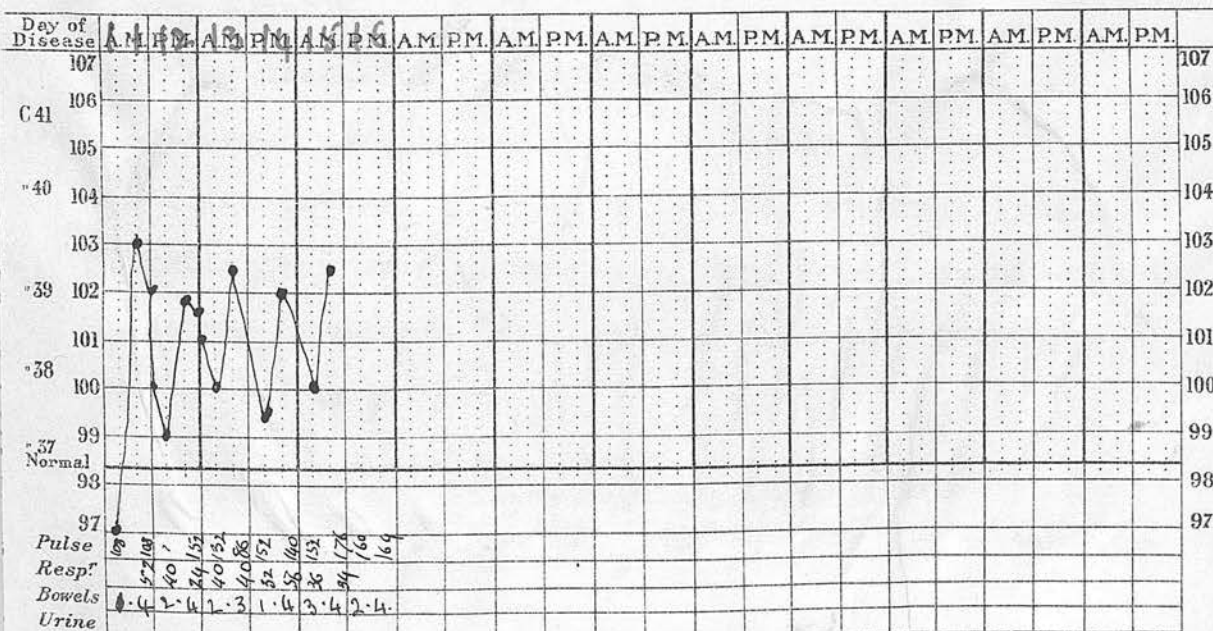
Sheet No. 12,
Walker's Medical
Loose-Leaf Book.

NAME _____

Disease

Age

Result



NELLIE ROBINSON, aet 9/12.

7, Salisbury Street, Marylebone.

Admitted 19th September, 1912. Died 16th October, 1912.

Complaint: difficulty in breathing.

On morning of admission she was seized with an attack of dyspnoea which has got worse, so she was brought up to hospital.

She had vomited a little in the morning.

Previous health and family history unimportant.

On admission T. 97.6 P. 168 R. 64.

Breathing very laboured with wheezing sounds of tracheal and bronchial spasm. The colour very bad and pulse very feeble.

Loud, dry sounds all over the chest obscuring everything else.

Some discharge from the right ear.

Abdomen normal, except for palpable spleen.

Urine neutral in reaction without abnormalities.

20th September, suspicious rash, breath sounds still obscured by coarse râles and ronchi Dyspnoea not nearly so marked.

Given:

Lig. Morph.

Lig. Atrop. aa m̄j.

Tr. Muc. Vom m̄j.

aq Chlorof ad 3 j.

21st No further development of rash. Better but

still intense bronchial catarrh. ~~it is and one cannot~~

24th. After a period of high swinging the temperature has subsided and the breathing is perfectly easy and regular.

Still catarrh signs over both bases. The percussion note is distinctly impaired over the left base and the breath sounds are indistinct.

26th September. Temperature rising again. The right ear is still discharging, but is better. The catarrhal signs still all over the lungs.

29th. Was discovered to have a bacillus coli infection of the urine in addition to slight otorrhoea and a definite lobar pneumonia at left base. Put on Pot. Cit. grs v. t.i.d.

10th October. After a pseudo-crisis she had her definite crisis and was much better for a time, the lungs clearing up well. The coliuria however persisted and the otorrhoea which had stopped for a time began again.

14th October. The temperature is swinging high again, no doubt due to the coliuria as the lungs are quite clear.

16th. Developed an acute attack of gastro-enteritis with severe diarrhoea and vomiting, and after two days died this afternoon, the coliuria persisting to the end.

No autopsy was allowed.

In this case the child seemed to have safely weathered

all her troubles, except the coliuria and one cannot but hold this responsible for the fact that she was eventually carried off by gastro-enteritis.

She had meningial symptoms for one week and the condition was taken for one of meningitis, but on lumbar puncture the cerebrospinal fluid was found normal.

The urine contained pus and Bacillus of Gaertner.

The Right kidney was enlarged and tender, and later the left kidney developed the same condition, the right then diminished in size but the left increased.

As the child seemed dying the left kidney was explored but nothing except pus was found, a large quantity of this was evacuated and the child gradually recovered so far as symptoms were concerned though the urine still contained pus. The fistula finally closed on October 15th.

A case illustrating the resemblance to cerebral mischief. The symptoms were relieved, but the child was not cured since there was still pus in the urine.

McCRAE, PRACTITIONER, 1910.

V. Girl aet 6 months, admitted March 25th, 1910.

She had meningeal symptoms for one week and the condition was taken for one of meningitis, but on lumbar puncture the cerebrospinal fluid was found normal.

The urine contained pus and Bacillus of Gaertner.

The Right Kidney was enlarged and tender, and later the left kidney developed the same condition, the right then diminished in size but the left increased.

As the child seemed dying the left kidney was explored but nothing except pus was found, a large quantity of this was evacuated and the child gradually recovered so far as symptoms were concerned though the urine still contained pus. The fistula finally closed on October 16th.

A case illustrating the resemblance to cerebral mischief. The symptoms were relieved, but the child was not cured since there was still pus in the urine.

McCRAE, PRACTITIONER 1910.

III Girl aet 7½ months.

Was constipated, but otherwise healthy, and well nourished.

Suddenly ill one evening, temperature rising to 104° F. The next morning she was unconscious, the body extended and rigid. The rigidity lasted one hour and she was semi-conscious till afternoon, when she had right-sided convulsions lasting 3 hours, with deviation of eyes to the right.

She was given grs x. Pot. Brom. and grs v. Chloral per rectum and chloroform was administered for one hour. After this she went to sleep from which she wakened 6 hours later.

The temperature was 100, her right arm and leg were paralysed and there was no paralysis of the face.

In the next few days the paralysis passed off. She occasionally went very pale with blue lips during sleep, but when roused recovered.

14 days later the temperature rose to 105 without demonstrable cause and for three weeks she continued to run an intermittent temperature with no rigors or fits though on five occasions she became unconscious. In the worst of these attacks the Temperature was 104, the Pulse 200, the respirations rapid and shallow. She was slightly rigid and remained like this for 6 hours

when she went to sleep. When she woke up she was ready to play. *Quart. Journ. of Medicine*, 3910 - 11.

After some other attacks not so bad the urine was examined and found to be acid, containing albumen pus and B. coli. Nothing else was found on examination. She was given Urotropin grs j. Pot. Cit. Grs v. 4 hourly for 6 weeks and made a good recovery, and at age of 15/12 was quite healthy with no brain trouble.

A remarkable case of the cerebral effects of B. Coli at the present time this child now $3\frac{1}{2}$ is in excellent health and has an almost precocious intelligence. *adder was not thickened.*

There were definite areas of congestion at the splenic and hepatic flexures.

The brain and meninges were normal.

This was the only acute case of this nature. An interesting case confirming the presence of brain lesions in these meningeal cases.

XXI
JEFFREY. Quat. Journ. of Medicine, 1910 - 11.

I. A boy aet 4 months admitted to hospital on May 30th, 1910. Had suffered from diarrhoea and vomiting for 9 days, and when admitted was collapsed and cyanosed with contracted pupils. A diagnosis of possible meningitis was made, and a lumbar puncture performed. The urine contained pus and B. Coli.

The child died on the 12th day of his illness.

The kidneys were found to be mottled, the pelves and ureters contained pus, but were not dilated, and the bladder was not thickened.

There were definite areas of congestion at the splenic and hepatic flexures.

The brain and meninges were normal.

This was the only acute case of his series. An interesting case confirming the absence of brain lesions in these meningeal cases.

LIPPE ARCHIVES OF PEDIATRICS, 1909.

A girl aet 1 2/12, had fever without demonstrable cause. There was slight head retraction, but no Kernig's sign.

The child was very irritable and rolled her head a great deal.

She vomited without nausea and the bowels were constipated.

The blood showed a leucocytosis.

The urine contained pus and bacilli with a trace of albumen.

She made a good recovery in ten days under Urotropin.

Was recently treated at a London Hospital for attacks of pyrexia supervening at regular intervals.

On admission a few bronchitic sounds otherwise nothing to note.

Blood showed a polymorph leucocytosis, and urine contained a trace of albumen and pus.

Had bouts of pyrexia at recurring intervals, when she was sick out of sorts and complained of headache. At these times she lost her appetite.

In December had a bout of pyrexia convalescing.

In January was discharged, cured, the urine being

BOSANQUET, EDIN; MED. JOURN. Vol. XIV.

Girl aet 6.

Had had some fits.

Uncle suffered from fits, three brothers had had fits between 5 and 6, 3 children after patient had died in infancy.

Was admitted on October 27th, 1902.

History healthy at birth but at 18 months began to suffer from convulsions frequently, vomiting and passing urine during the attacks. These occurred at intervals of 14 days to 1 month. Child was listless and ill for a few days after these fits. A fit one week before admission.

Was recently treated at a London Hospital for attacks of pyrexia supervening at regular intervals.

On admission a few bronchitic sounds otherwise nothing to note.

Blood showed a polymorph leucocytosis, and urine contained a trace of albumen and pus.

Had bouts of pyrexia at recurring intervals, when she was sick out of sorts and complained of headache. At these times she lost her appetite.

In December had a bout of ~~pyrexia~~ tonsillitis.

In January was discharged, cured; the urine being

free from pus. MED. JOURNAL VOL. XIV.

There was no abdominal pain at any time.

The treatment in this case was with alkalies.

Family History: Mother and Aunt had rheumatism.

Uncle renal disease.

Suddenly seized with ill on April 11th 1895.

Limbs rigid, eyes staring. This lasted 8 minutes; 3 other fits that day.

April 15th admitted, temp. 104.2 Throat red, tonsils inflamed with a few bronchitic sounds in lungs. Otherwise nothing to be made out on physical examination.

The child was anemic and thin, but not wasted.

Urine acid, sp. gr. 1015 turbid, pus and bacilli.

The temperature varied for a period of 2 months between 98 and 100 rising regularly every 4 days; after June 2nd, seldom rose higher than 100, but the general condition was considered much improved and was to be due to 95°.

During bouts of temperature child was ill and quiet but in periods of remission slept well and was fairly comfortable.

The appetite and general condition improved as the temperature became more normal. On June 18th had a rigor, lasting 10 minutes with marked cyanosis of lips. Child recovered on having a warm bath. Temperature

IV
BOSANQUET EDIN. MED. JOURNAL VOL. XIV.

I. Boy aet $2\frac{1}{2}$

No serious illness previously. Rickety.

Family History: Mother and Aunt haemoptoses.

Uncle renal disease.

Suddenly seized with fit on April 11th 1895.

Limbs rigid, eyes staring. This lasted 8 minutes;
3 other fits that day.

April 16th admitted, temp. 104.2 Throat red,
tonsils inflamed a few bronchitic sounds in lungs.
Otherwise nothing to be made out on physical examina-
tion.

The child was anaemic and thin, but not wasted.

Urine acid, sp. gr. 1015 turbid, pus and bacilli.

The temperature varied for a period of 2 months
sometimes up to 106 and rising regularly every 4 days;
after June 2nd, seldom above normal once as high as
102, but the diurnal sway was considerable and used to
go down to 95°.

During bouts of temperature child was ill and sick
but in periods of remission slept well and was fairly
comfortable.

The appetite and general conditions improved as
the temperature became more normal. On June 12th had
a rigor, lasting 10 minutes with marked cyanosis of
lips. Only recovered on having a warm bath. Temperature

raised 4 degrees. Next day was drowsy and irritable.

After this the boy gradually recovered and left hospital on 18th July but urine still contained pus.

On July 20th was re-admitted complaining of abdominal pain. The temperature was subnormal, pulse 120 urine contained albumen and pus.

On August 20th developed Scarlet Fever and was removed to the Fever Hospital where he made a good recovery and on being discharged was found to have got over the pyelitis, the urine containing no pus.

The treatment throughout was simple tonics.

THOMSON QUAT. JOURN. OF MED. VOL. III.

II. Boy aet 3/12.

The illegitimate son of a woman in very poor circumstances.

Admitted March 25th, 1909, died April 9th.

Complaint pallor and weakness.

A breast and bottle fed baby, ill looked after but not having had any definite previous disease.

The bowels had been regular and there was no history of trouble with micturition or offensive smell of urine, and there was no history of acute onset or fever. The child simply seems to have got paler and weaker. It has had what are described as fits in which he went rigid and squinted. On admission a very feeble pale child.

Heart and lungs normal.

The abdomen enlarged, not tender, the liver and spleen normal.

Urine acid, trace of albumen pus and B. Coli present in quantity.

Blood R.B.C. 1,084,000 W. 6,000 H.C. 25%

The child gradually got weaker and although on 2nd day temperature went up to 102 after that it was sub-normal.

In last 24 hours broncho-pneumonia developed.

POST MORTEM

Extensive broncho-pneumonia and slight pleurisy in both lungs.

Nil in abdomen, no pyaemic foci.

Bladder shows catarrh, no systitis.

Ureters both dilated.

The left kidney was enlarged. The stellate veins were engorged. No pyaemic foci, pelvis normal.

The right kidney was very large, three times as large as left. Soft flabby. A large area of hyperaemia on posterior surfaces and the upper end in front.

This hyperaemic area is sharply marked off from rest of kidney which is pale.

Scattered over this area are small yellowish deposits, raised on surface and often surrounded by intensely hyperaemic zone.

Cortex swollen and pale. No true abscesses in this but yellowish lines radiated from pyramids. The pyramids showed haemorrhagic infiltrations and the pelvis was enlarged with infected slightly granular mucous membrane.

Cultures taken from bladder and pelvis gave pure culture of *B. coli*.

The absence of other pyaemic foci and the distribution of infection points to ascending course.

IV. Girl aet 6 months.

Was pale, restless and in obvious distress.

The respirations were 60 per minute and she looked like a pneumonia, but there were no signs in the lungs.

Heart was normal.

In the abdomen in the right kidney region was a large tender mass which might have been a large kidney or a perinephric abscess.

The liver and spleen was considerably enlarged.

The urine was acid, albumen trace, pus ++

Cultures gave pure B. coli.

There was a leucocytosis of 16,000

She was put on grs x of Urotropin daily, with no effect on the swinging temperature for a week, after which time it began to fall, the child gradually recovering, and the pus and organisms disappearing from the urine.

LIPPE ARCHIVES OF PEDIATRICS, 1909.

A girl aet 3/12 took ill suddenly with fever

on the 1st. A girl aet 1½ have a history of a cold for some weeks and then she had a sudden rise of temperature to 106° accompanied by tachipnoea.

On physical examination nothing was found, but the urine contained albumen and pus.

A diagnosis of pneumonia was at first suggested but there were no physical signs to support this.

Interesting on account of the presence of dyspnoea as well as tachipnoea which is unusual.

A girl aet 9/12 took ill suddenly with fever on the second day of illness the temperature was 105. She had tachypnoea with an expiratory moan, but nothing was found in the chest to account for it.

The rest of the physical examination was also negative the albumen was present in the urine along with pus and bacteria. She eventually made a good recovery.

Interesting on account of the presence of dyspnoea as well as tachypnoea which is unusual.

Nothing on physical examination, the signs in the chest not having progressed. Quinine grs 2. in day ordered.

For the next four days there was slight temperature. The child was pale and very restless. Urine was scanty and high coloured. Pus ++ albumen trace. Microscopically pus and epithelial cells, no casts.

The patient was prostrated, but not dangerously ill.

There was no subsequent rise of temperature, and the pus continued to diminish gradually. Two months later there was no pus. There were no acute signs throughout the illness. The child remained well for twenty months, after which it was lost sight of. No treatment except Quinine. A spontaneous recovery without any of the usual methods of treatment.

XIX

SMITH PEDIATRICS, 1912.

EMMETT HOLT vide ARCHIVES PEDIATRICS Vol XI.

I. Boy aet 1 2/12. Breast fed , no illnesses except mild diarrhoea.

On September 15th, 1892 was taken suddenly ill with a temperature of 103.5 and beyond a slight stomatitis there was no sign of disease.

On the second day the temperature ranged between 101 - 103 - 105. A few rales at the bases led one to expect pneumonia.

Third day temp. between 100 - 2 - 101 - 2. Nothing on physical examination, the signs in the chest not having progressed. Quinine grs x. in day ordered.

For the next four days there was slight temperature. The child was pale and very restless. Urine was scanty and high coloured. Pus ++ albumen trace. Microscopically pus and epithelial cells, no casts.

The patient was prostrated, but not dangerously ill.

On the 13th day pus appeared in the urine and the pus continued to diminish gradually. Two months later there was no pus. There were no casts seen throughout the illness. The child remained well for twenty months, after which it was lost sight of. No treatment except Quinine. A spontaneous recovery without any of the usual methods of treatment.

XXX
SMITH PEDIATRICS, 1912.

A girl aet 14/12 who had been previously healthy was taken ill on October 4th 1911 when she developed a high temperature seemed apathetic and refused food. Nothing was found on examination, except a spot of slight dullness and diminished respiratory sounds in the upper posterior part of the left lung. There were no rales.

Temp. 105, P. 106 R. 32

On October 6th the Temperature was 102.6 P. 160 R. 56. The signs in the left lung had cleared, but there was exactly the same condition in the right lung.

There was a slight systolic murmur heard at the apex of the heart.

The spleen was just palpable.

The urine contained a trace of albumen but no pus. The blood showed a negative Widal and there were no malarial parasites.

On the 13th day pus appeared in the urine and the blood showed a leucocytosis of 18,000

The temperature came down on the 7th day, but rose again on the 10th and continued elevated until the 17th.

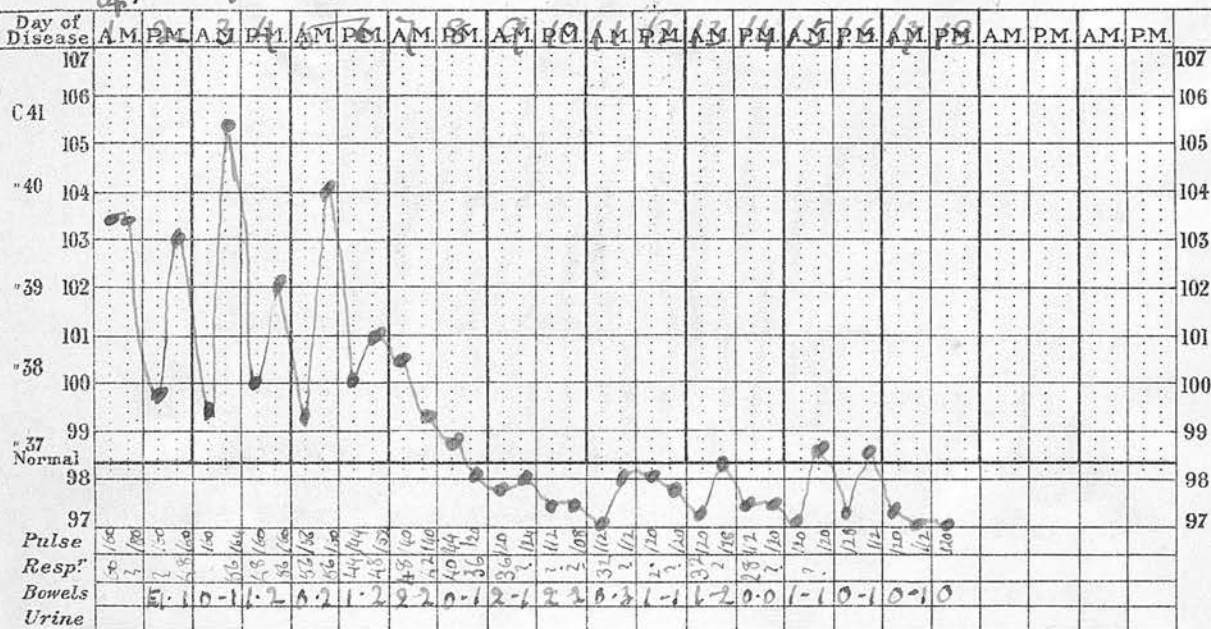
She was given Urotropin grs j 2 hourly and the symptoms were relieved.

NAME Violet Gosling
Age.

Disease

Age

Result



VIOLET GOSLING, aet 5/12. 18 Howlett Street, Hall Park,

Admitted 1st April, 1912, discharged 18th April.

Complaint: vomiting, loss of appetite, constipation, rapid breathing, crying, pain in loins.

History: six days ago began to have tachypnoea. Became sleepy and drowsy, but was restless. Vomited first on the same day and has continued to do so ever since.

Cries when she wakes up but is easily pacified. Bowels not opened since yesterday morning. Has been off her food since the illness began.

Previous health good. Breast fed two months, bottle fed three months.

Family History: unimportant.

Physical examination: negative.

Urine acid, albumen trace, pus + bacilli diphtheroid and a few cocci. Leucocytosis 20,600

3rd April. Child is still rather irritable, but easily soothed if taken up. Temperature swinging. Given Pot. Cit. and Pot. Acet. ac grs v. 4 hourly.

4th April. Not taking well at all. Sick this morning. Child very pale and fretful, has some meningism

Urine still acid pus and bacilli.

5th April. Not so noisy, appetite poor, stools normal, urine alkaline to-day.

6th April. Vomiting, undigested stools. Urine alkaline, given ~~66~~ Ricini 3 ~~for~~ t.i.d.

8th April. Bowels more regular motions still very offensive, urine still very full of pus. Discs normal.

Lumbar puncture 4 c.c. No increase of pressure or abnormality. Given Urotropin grs v. 4 hourly.

9th April. Urine alkaline, albumen very faint trace, pus less.

Vomiting less, child better.

11th April. Crying and fretful, stools very offensive.

13th April, Temp. quite steady, now, child better. Urine alkaline pus less.

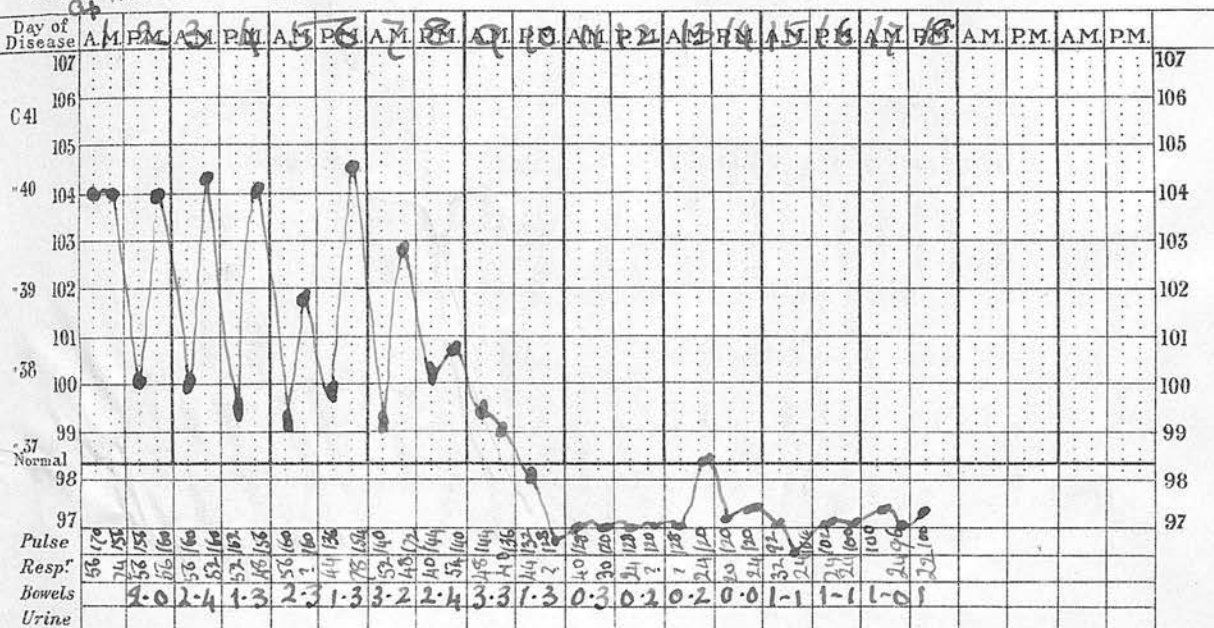
18th April. Discharged, very much improved. Child's health quite good, but still some pus in urine.

XXX11

Sheet No. 12.
Walker's Medical
Loose-Leaf Book.NAME Irma Skelton Disease

Age

Result



Temp. in Vag. large, but no menstruation.

Tongue acid, alveolar cream, but and bacilli present.

Stomach contents of 14,000 cc. 100 cc. 100 cc. 100 cc. 100 cc.

Stool 100 cc. 100 cc. 100 cc. 100 cc. 100 cc.

Urine 100 cc. 100 cc. 100 cc. 100 cc. 100 cc.

Urine 100 cc. 100 cc. 100 cc. 100 cc. 100 cc.

Urine 100 cc. 100 cc. 100 cc. 100 cc. 100 cc.

Urine 100 cc. 100 cc. 100 cc. 100 cc. 100 cc.

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Urine 100 cc. 100 cc. 100 cc. 100 cc. 100 cc.

MIRIAM SKELTON aet 11/12. 52 Appleford Road, N.Kensington.

Admitted 1st April, discharged April 18th.

Complaint: cough, difficulty in breathing, and twitching of the eyes.

Two days ago vomited during the night, the breathing began to be rapid, the same day and she had a cough for three days.

Previous health good, bottle-fed.

Family history: unimportant.

Child has the appearance of a pneumonia, with inverted breathing etc. There are some catarrhal signs in the lungs, but no consolidation.

Urine acid, albumen trace, pus and bacilli present.

Leucocytosis of 14,000. Given Pot.Cit. Pot Acet.
a.o. grs vij. 4 hourly.

3rd April: Child has a cough, and the temperature is swinging from 100 - 104, lowest about 5 a.m. and highest about 5 p.m.

4th April: Sleeps well and takes well.

5th April. Urine alkaline, child fairly well, sleeps well and takes well, sick once during night, slight diarrhoea.

8th. Discs appear pale compared to choroid.
Lumbar punctured 15 cc withdrawn under pressure, but no abnormalities found therein. Pus less, child on the whole better.

XXXIII

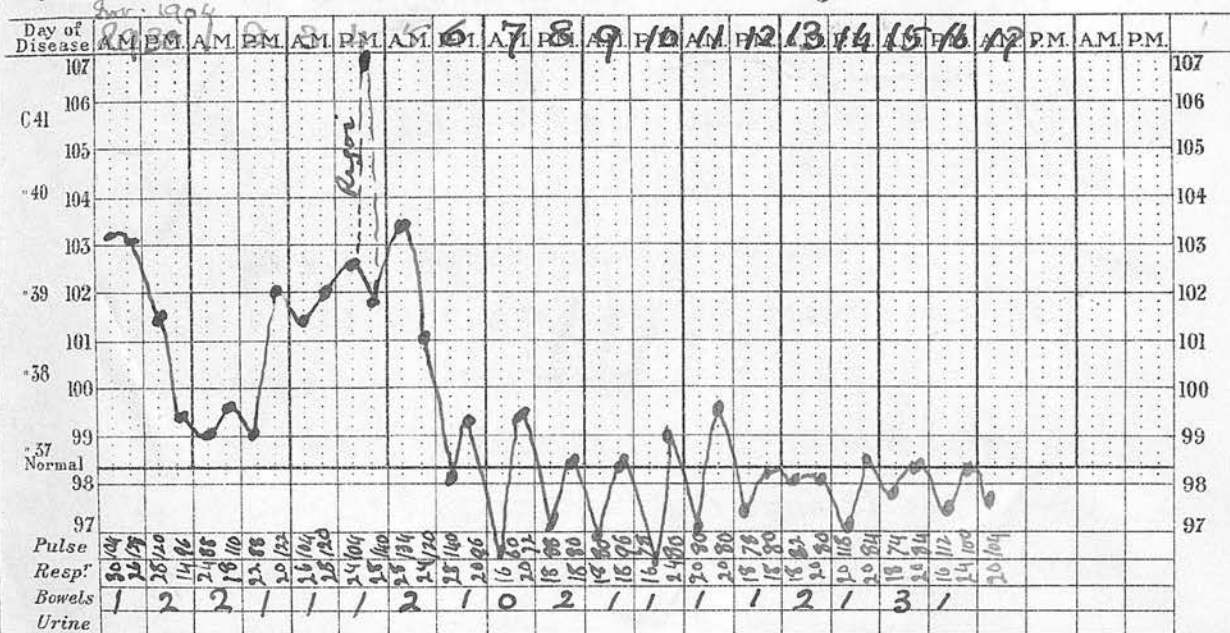
Sheet No. 12.
Walker's Medical
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NAME Beatrice G. Halloran

Disease

Age

Result



Left side, moist creps on deep inspiration.

Heart area, and over the left knee behind.

Respiration deep and apparently easy, also moist
over slightly on inspiration.

Heart and abdomen normal.

Frequency of micturition. Urine acid, offensive
solid, contains pus and a trace of albumen.

March 24th. Sudden fall of temperature, patient
seems better, but still drowsy, no complaint of pain.
Temp. now 98.2, physical signs in chest unchanged.

March 25th. Had a severe rigor last night lasting
10 minutes. Temperature rose to 101.2 with sweating
afterwards. No pain but micturition very frequent, 8 or
10 times in a few hours. Urine solid, contains pus.

BEATRICE O'HALLARAN aet 9.

347a Edgware Road.

Admitted November 29th, 1904. Discharged December 17th.

The child has been ill for a week with fever and pains in the left side, has been treated with poultices. The Bowels are constipated.

The child is pale except for flushed cheeks; she is drowsy and apathetic. The tongue is very furred, the skin is dry and hot and she complains of headache.

Chest. Impaired resonance in midaxillary line of left side, moist creps on deep inspiration over same area, and over the left base behind.

Respirations deep and apparently easy, also bases move slightly on inspiration.

Heart and abdomen normal.

Frequency of micturition. Urine acid, offensive smell, contains pus and a trace of albumen.

March 30th. Sudden fall of temperature, patient seems better, but still drowsy, no complaint of pain. Tongue very furred, physical signs in chest unchanged.

December 4th Had a severe rigor last night lasting 10 minutes, temperature rose to 105.6 much sweating afterwards. No pain but micturition very frequent 9 or 10 times in a few hours. Urine acid, contains pus.

Tongue cleaner, physical signs in chest have cleared up. Given urotropin grs iij t.i.d. and Ammon. acet. Mist 3 i j t.i.d.

December 7th, much better. Temperature subnormal. No pain, less frequency of micturition, only a trace of pus in urine.

December 12th, much better, no pus in urine.

December 17th, discharged very well, no pus in urine. Illustrates the presence of misleading physical signs in the lungs.

XXXIV

Sheet No. 12,
Walker's Medical
Loose-Leaf Book.

NAME <i>Brace Roberts</i>		Disease		Age		Result																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Day of Disease	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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BEATRICE ROBERTS, aet 11/12

6 West End Cottages, West End Lane.

Admitted 8th November, 1911. Died 10th November, 1911

Complaint: running of the ear. Wasting, Constipation.

History: Five weeks ago child was not taking her food well and began to have discharge from the ear. A

fortnight ago began to vomit and her motions were dark green and bad smelling. Does not sleep well at all.

Does not cry much, the same time.

Previous Health: Ear discharge at 8 months which cleared up.

Family History: Parents well, 9 children alive and well, 5 dead.

On Admission: Very irritable, resents handling, well nourished, no signs of rickets, slight neck rigidity.

Impaired note over right apex, with bronchial breathing, and impaired vocal resonance. Medium creps over right lung.

Abdomen shows nothing except that ^{the} spleen is just palpable.

Heart normal.

Urine acid; trace of albumen, pus, B. Coli.

Given Pil hyd. & sod. grs v. nocte.

November 9th, vomited twice during night and passed

a restless night with only about two hours sleep.

Whining considerably.

The morning urine shows pus and bacilluria. Still very irritable. Three green undigested stools.

Given Pot. cit. grs x.

Pot. bicarb. grs x.

Syr. amy m x

aq ad. $\frac{3}{4}$ 4 hourly.

10th November. At 12.5 a.m. began to twitch on both sides of face, both arms and left leg. Cyanosed. Partial recovery about 12.15 and then got worse again, twitching in the same limbs.

This had passed off by 12.30, the face being affected longest. Vomited slightly. pulse bad.

1.30 slight twitching of both sides of the face going on continuously, eyes fixed to left. Pulse very bad, breathing irregular. 7 a.m. the child died without any warning of her becoming worse.

Post Mortem.

Brain, veins engorged on left parietal region over vertex and over mesial aspect. A recent haemorrhage in subarachnoid.

No signs of recent meningitis or tubercle.

Lungs anterior emphysema with lobular collapse. At right apex consolidated, suggestive of not very recent pneumonia process. In left lower lobe a small haemorrhage.

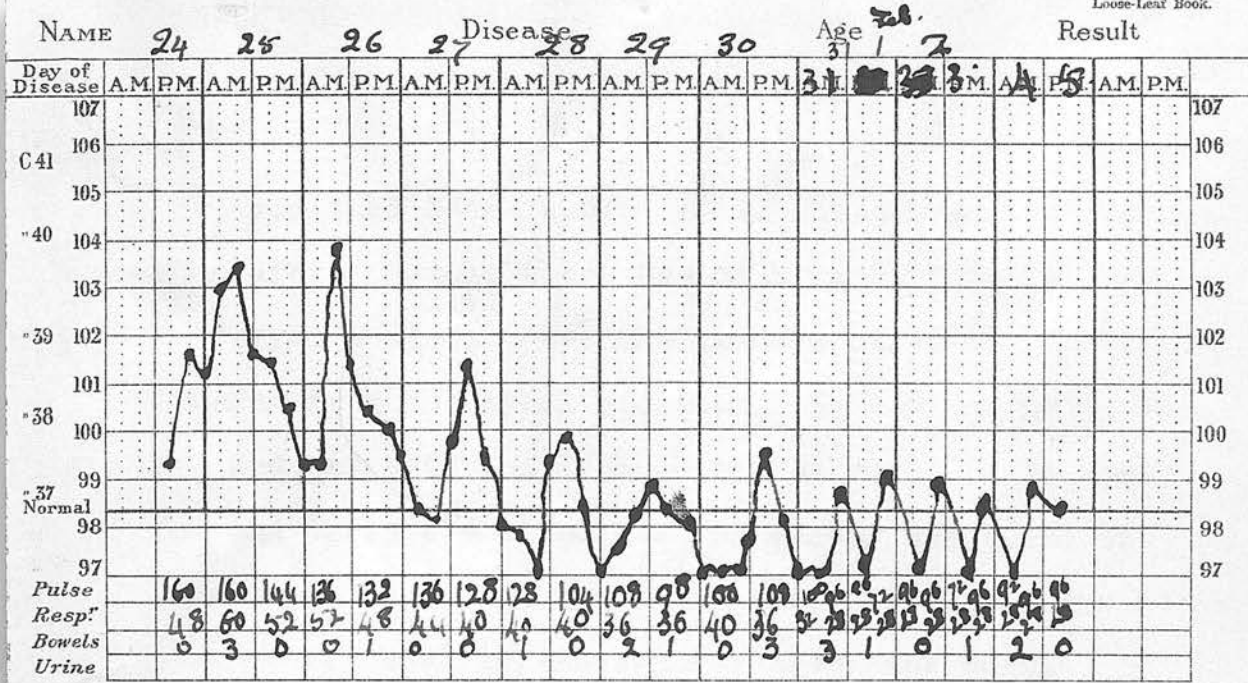
Heart normal

Liver cloudy swelling

Spleen cloudy swelling.

XXXY

Sheet No. 12.
Walker's Medical
Loose-Leaf Book.



Discharged. Temperature now normal, cough
much better. Urine clear.
ROBERT COUCHER aet 1 11/12,

34, Homer Street, Marylebone Road.

Admitted 24th January 1912. Discharged 5th February

Complaint: Cough, shortness of breath, feverish.

History: Last Saturday the illness began with cough, running from the eyes, and nose. He has had no vomiting and has not been kept in bed at all. He is wakeful and irritable at night. On Sunday was short of breath and on Monday was definitely feverish. Has complained of anal irritation for about one week.

Previous health: no infectious diseases.

Family History: Father alive and well, Mother cardiac disease. No children dead, no miscarriages. On admission had signs of bronchitis, otherwise settled nicely but temperature rather higher than warranted by bronchitic signs.

Urine: Acid, acetone present, no albumen. Slight trace of pus, bacilli present, B.Coli. Given milk diet, no drugs.

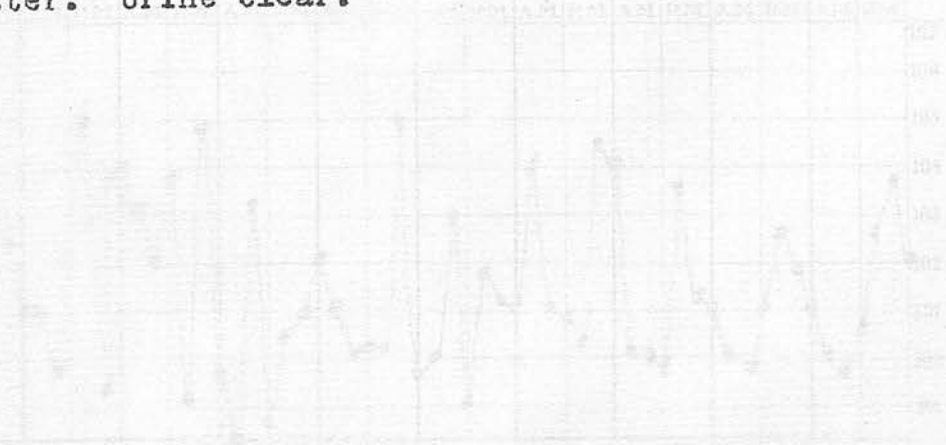
26th January. Temperature high, but pulse and respiration settling, a harsh, troublesome cough.

Urine I.S.Q.

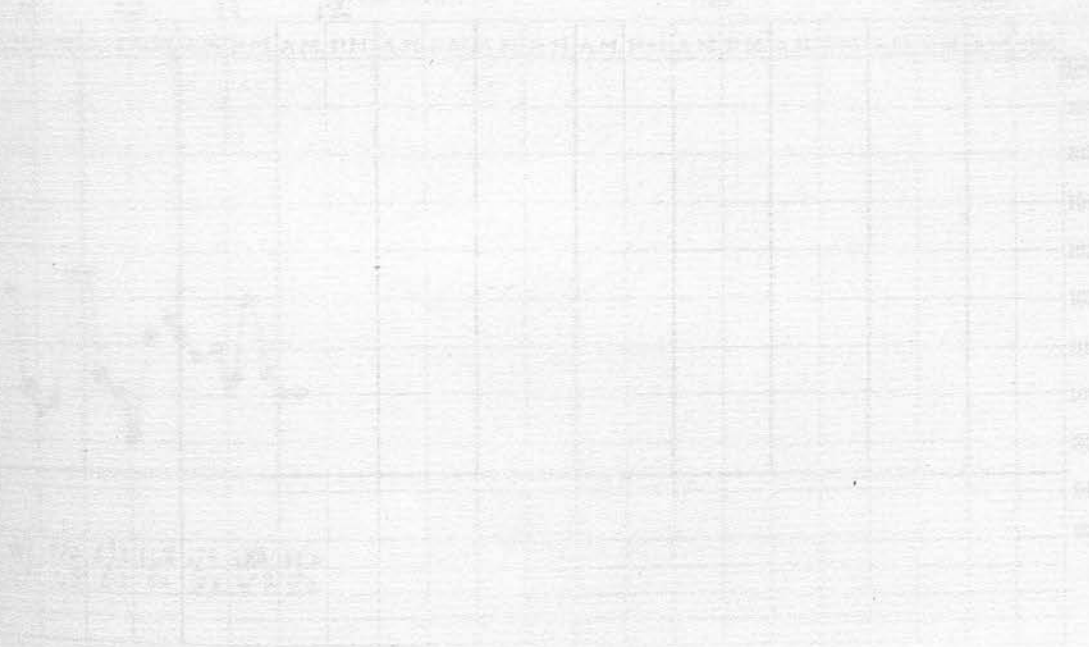
28th. Still running a temperature, cough trouble : some.

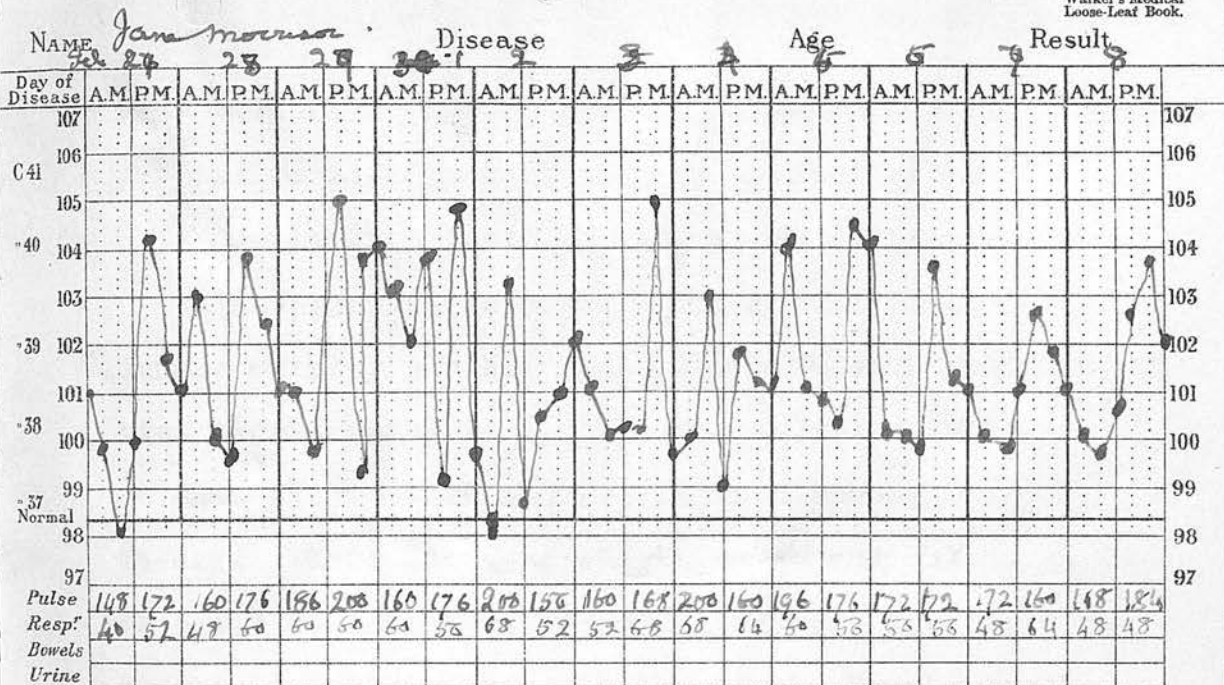
30th. Temperature seems settling. Urine acid. No albumen, no pus seen, bacilli found.

5th Discharged. Temperature now normal, cough
much better. Urine clear.



100 101 102 103 104

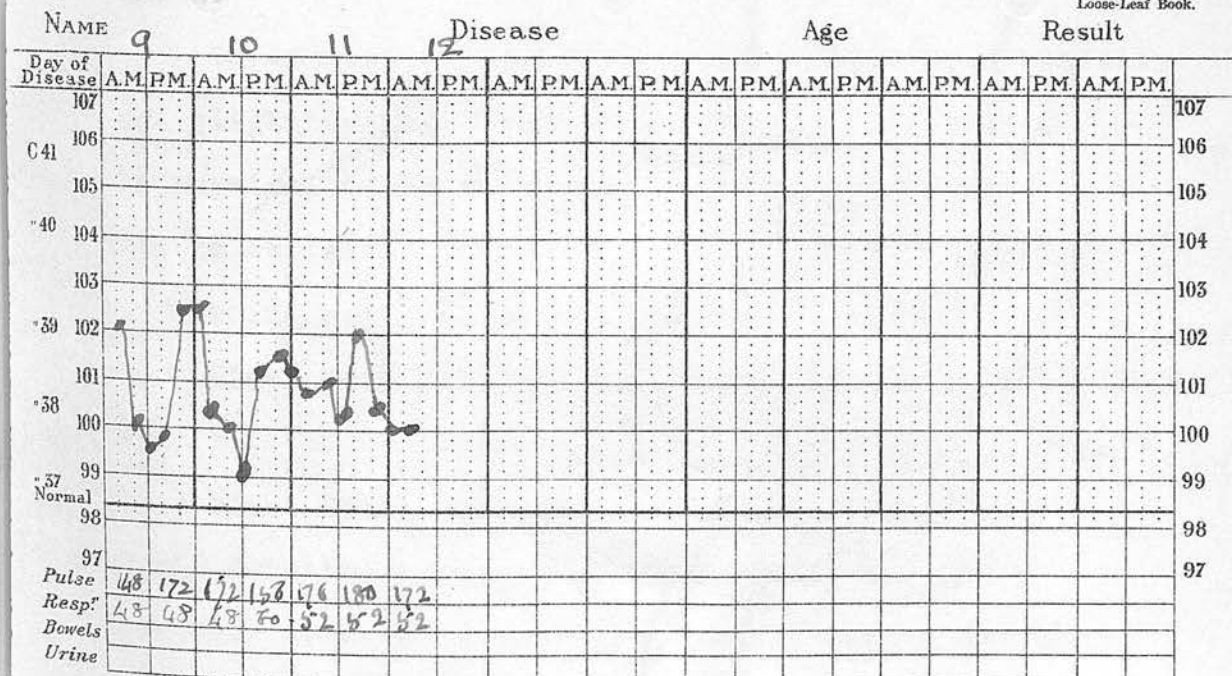




Open to-day. Water passed freely but has a bad smell

for first time in day. Bottle red.

Family History: Two miscarriages before this



JANE MORRISON aet 4 months. 22 Farm Street, Mayfair.

Admitted 26th February, Died 12th March.

Complaint: Vomiting, shortness of breath.

History: Child quite well up till Sunday. On Sunday morning she had shortness of breath and respiration seemed painful. After some medicine from the Dr ~~when~~ she vomited and has retched several times to-day. There has been slight cough and slight sore throat. No expectoration no sneezing. The child has been dull and listless all the time. Bowels freely open to-day. Water passed freely but has a bad smell for first time to-day. Bottle fed.

Family History: Two miscarriages before this child.

On admission: child irritable, some head rigidity and slight Kernig. Fontanelle slightly depressed. No physical signs in chest. Abdomen prominent, nil to be felt.

Urine acid, albumen + pus +

Given Pot. Cit. and Pot. Carb. ad grs v. 4 hourly.

28th. Still pus and albumen in urine. Temp. still swinging markedly Very fretful, has got a markedly cerebral appearance. Still Kernig and head rigidity, sweats profusely.

29th. Rather a better colour, but urine still contains pus and albumen in quantity though neutral to-day.

1st. Taking better, but very fretful and weak.

4th Still pus and bacilli. Urine quite alkaline Child not doing well at all, head signs have not progressed further.

10th. Pretty much as she was. Urine alkaline, pus and albumen in quantities, very rigid.

12th Died this morning quietly, no convulsions, No Post-mortem allowed.

Had been given vaccines for last few days without any effect at all.

The presence of dyspnoea and tachipnoea resembled pneumonia trouble and later meningeal signs developed, presumably all due to the coliuria.

FRANKLIN I case. ARCHIVES OF PEDIATRICS vol xvi.

I. Boy aet 8/12.

LIPPE: History of two ARCHIVES OF PEDIATRICS, 1909.

disorder.

A girl aet 9/12, gave a history of abdominal spasm and digestive disturbance, ten days before she came under observation.

The temperature was high, rising to 105°

The child was pale, irritable and restless, but on physical examination nothing was found.

The urine contained pus and albumen.

and She eventually made a good recovery.

Milk always made the child worse and the temperature higher.

On the 22nd day the child developed twitching of the limbs and neck rigidity.

Respirations 30 but no laboured action of chest.

Temperature 105.7 in evening, reduced to 105.2 by cold bath. Nothing found on examination. Given of Rhoim gill, Quinine Sulph. grs j.

Urine acid sp gr. 1020 Alb trace, pus ++ a few Myeline casts.

Blood R.E.C. 3,900,000. HC 70. W.B.C. 15,000.

25th day stuporose, given Urotropin grs $\frac{1}{2}$ 4 hourly, irrigation of bowels every morning and poultices over the kidneys twice a day.

26th day, getting Pot. Acet. grs 20 in 24 hours. Urine Alb. Pus +++ temperature lower.

XXVIII
FREEMAN 1 case. ARCHIVES OF PEDIATRICS vol xxij.

I. Boy aet 8/12.

History of two or three weeks intestinal disorder.

On February 18th suddenly took ill with vomiting and green stools, a high temperature and restlessness, food was stopped and calomel was given with water ad. lib.

For twenty days was fed on Barley water and albumen water with various remedies for the intestinal disorder viz: calomel \mathcal{O} . Ricini Aconite Acetanilide Bismuth and Brandy.

Milk always made the child worse and the temperature higher.

On the 22nd day the child developed twitching of the limbs and neck rigidity.

Respirations 80 but no laboured action of alae nasae .

Temperature 105.7 in evening, reduced to 103.2 by cold bath. Nothing found on examination. Given \mathcal{O} . Ricini \mathfrak{z} ij Quinine Sulphl. grs j.

Urine acid sp gr. 1010 Alb trace, pus ++ a few hyaline casts.

Blood R.B.C. 3,900,000. HC 70. W.B.C. 13,000.

25th day stuporose, given Urotropin grs $\frac{1}{2}$ 4 hourly, irrigation of bowels every morning and poultices over the kidneys twice a day.

24th day, getting Pot. Acet. grs 20 in 24 hours.

Urine Alk. Pus +++ temperature lower.

25th day. Temperature lower, pus much less,

B. Coli obtained in pure culture.

25th day. Better but hands cold and heart intermits every 3rd beat. Urotropin stopped, put on peptonized and pasteurised milk.

29th day. Better after good movement of bowels, Pot. Acetate increased to grs xl in day. After this made an uneventful recovery.

Appendicitis was suspected, but the urine was found to be acid and to contain pus and B. Coli.

She was given Pot. Cit. and the temperature pain and rigidity had disappeared by March 20th.

The child suddenly became ill again with a high temperature, pain and rigidity this time on the left side.

She was given Pot. Cit. grs xxij 2 hourly and was quickly relieved.

On April 23rd was well but there were still a few pus cells in the urine and on August the 3rd she had another attack which however quickly yielded to treatment.

This case illustrates the difficulty of diagnosis between colic and acute abdominal conditions.

XL

JEFFREY, QUARTERLY JOURNAL OF MEDICINE 1910-11.

II. A girl aet 1 2/12 admitted to hospital on September 9th 1909. Had suffered from Diarrhoea and vomiting for 6 weeks. The patient was collapsed and the temperature was normal. She was drowsy for a while and had occasional diarrhoea and vomiting.

On October 14th was worse, and the temperature rose. She was jaundiced with clay-coloured stools. The temperature was irregular and the urine contained albumen pus and bacillus Proteus. She was given vaccines and improved rapidly.

A second rise of temperature occurred on November 17th and the vaccine was repeated. She made a good recovery and was discharged, cured, on December 31st.

The Jaundice is unusual in these cases.

PORTER AND FLEISCHNER, ARCHIVES PEDIATRICS, 1910.

CAPTAIN McCAY, I.M.B., INDIAN MEDICAL GAZETTE, 1904.

II. Girl aet 2 years, had been ill since she was 7 months old.

In October 1908 was suddenly taken ill with diarrhoea, and green motions, temperature high, child very fretful. A brown sediment was noticed on the napkins.

The urine was very acid but no pus or albumen were found and it was not cultivated. Till September 1909 she had various similar attacks but was well in between times.

After one of these was given grs xv Urotropin daily and a stock vaccine was given in small doses of 1 - 10,000,000 but the child did not improve.

She was then given 20,000,000 every 4 days with complete success and for 6 months now she has had no B. coli in the urine.

A case cured by vaccine therapy given in sufficient doses.

She had slight frequency and was constipated, and until January 18th there was no improvement and the Temperature varied from 96° to 100° and the child had chills whenever the temperature fell below 100°.

On the 18th the patient was very weak and thin, and was in a semi-comatose condition. There was pain and tenderness in both kidney regions, more marked on the left.

CAPTAIN McCAY, I.M.S. INDIAN MEDICAL GAZETTE, 1903.

A girl aet 7 was observed not to be looking well had been constipated for a few days. On December 19th was suddenly taken ill with pain on the left side, extending down the leg. This pain was relieved by a poultice.

On the next day the temperature was 101° and the tongue was furred.

She was found to be tender over the left lumbar and inguinal regions, and was constipated. She was given Ol. Ricini and antifebrile mixture.

On December 25th the temperature was 105° , the pulse 120, there was headache, thirst and constipation and the temperature was swinging.

The urine was acid and contained a trace of albumen, it was not examined for pus at this time.

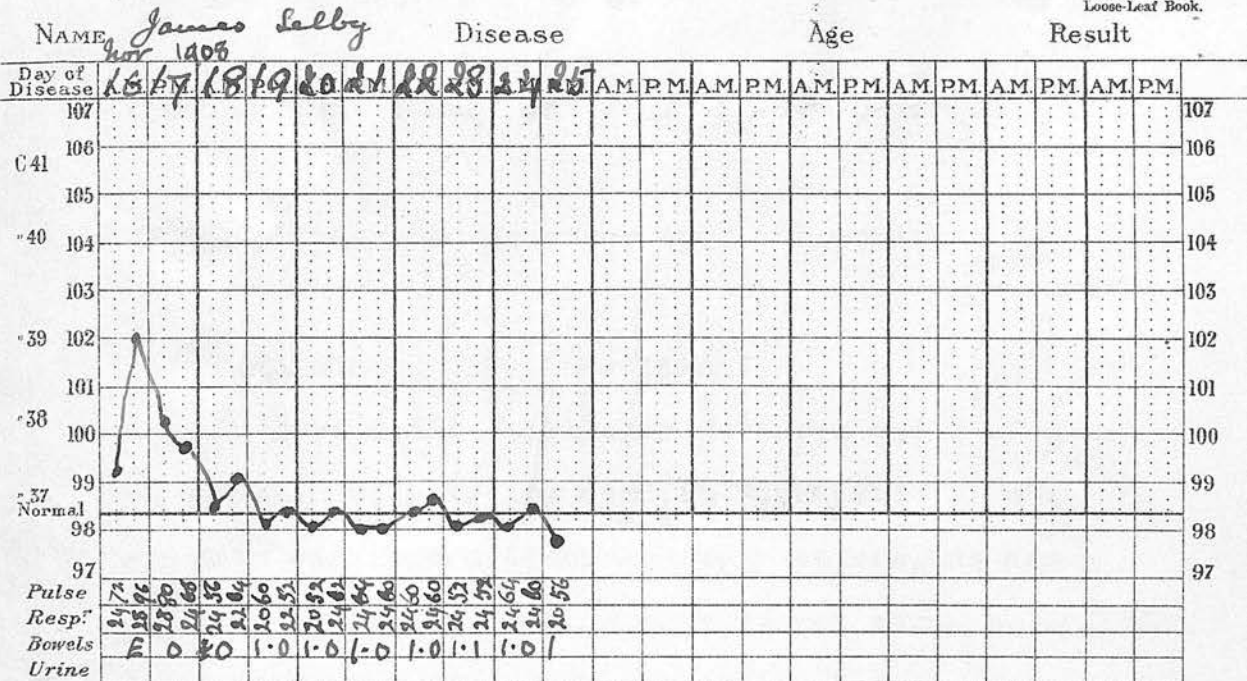
From 25th to 29th December was worse and became emaciated. She had slight frequency and was constipated, and until January 18th there was no improvement and the Temperature varied from 96° to 106° and the child had chills whenever the temperature fell below 100° .

On the 18th the patient was very weak and thin, and was in a semi-somnolent condition. There was pain and tenderness in both kidney regions, more marked on the left.

There was some swelling of the face.

On the 25th January urine was found to contain pus and B. coli. She was put on Pot. Cit. and the temperature fell to normal and the patient was much improved, but the activity of movement and growth of the B. coli was not impaired. However when given Uro-tropin the urine soon became sterile and she made a good recovery.

XLIII

Sheet No. 12.
Walker's Medical
Loose-Leaf Book.

and he got more feverish. Since Friday he has only had a little milk, but pain continues. No vomiting, bowels regular, motions healthy.

Previous illness measles.

Family History, mother phthisical.

Child pale and over-grown. No complaint but very dull inattentive and restless. No appetite sweats profusely.

Abdomen full, slight tenderness in right iliac and pubic regions. Liver and spleen not palpable, bowels constipated.

Tendon jerks ++ ankle and patellas shudder both sides, plantar flexion.

Heart faint systolic murmur.

Lungs normal.

JAMES ARTHUR SELBY aet 10. 12 Boyer Road.

Admitted 16th November 1908. Discharged 25th November

Complaint, pain in stomach.

In good health till 11th November when he started to complain of pain low down on right side of abdomen. The pain was intermittent and very severe, he was feverish at times. Pain always seemed worse about half an hour after food. On Friday pains became more severe and he got more feverish. Since Friday he has only had a little milk, but pain continues. No vomiting, Bowels regular, motions healthy.

Previous illness measles.

Family History, mother phthisical.

Child pale and over-grown. No complaint but very dull inattentive and restless. No appetite sweats profusely.

Abdomen full, slight tenderness in right iliac and pudic regions. Liver and spleen not palpable, Bowels constipated.

Tendon jerks ++ ankle and patellae ~~down~~ both sides, plantar flexion.

Heart faint systolic murmur.

Lungs normal.

Urine contains pus in large quantities, Acid reaction, blood clots have been passed, B. coli found.

17th November. Much brither to-day, still some tenderness over bladder.

18th November. Temperature fallen, complaining more of pain localized to pubic region. Urine still contains much pus and also some blood. Bowels open and motions normal.

19th. Some urinary retention last night, pain in pubic region, less severe but passing very little urine. Given urotropin grs v. 4 hourly.

20th. Pulse slow 50. No pain now. Pus and blood in urine much less.

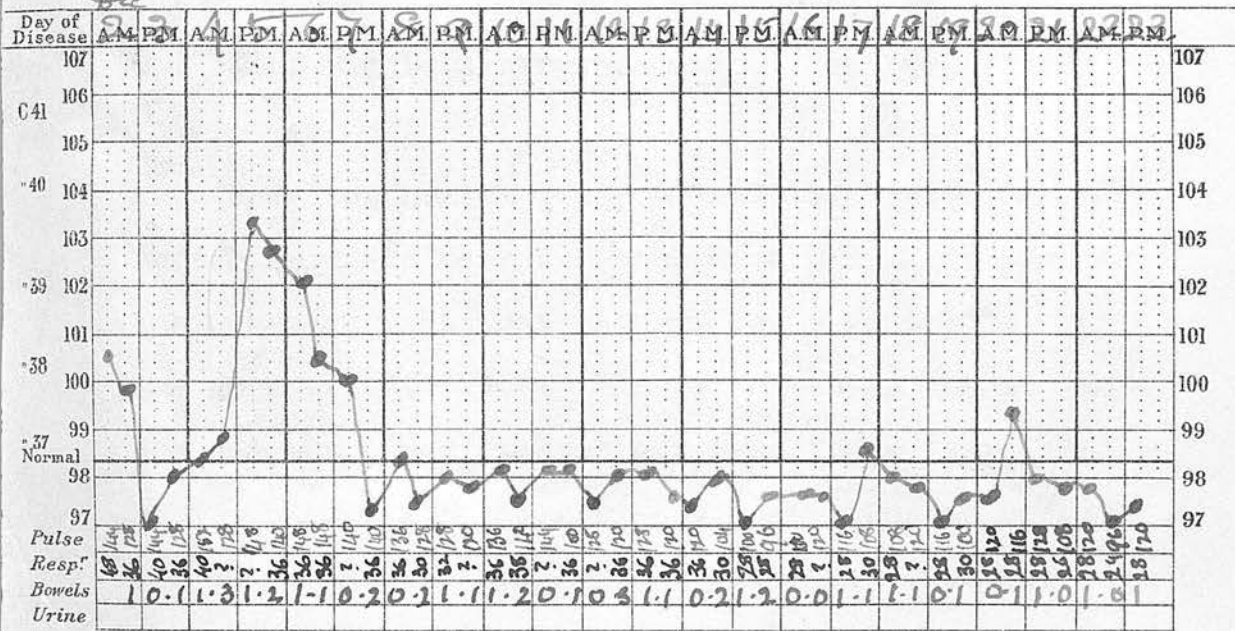
21st, passing more urine of a lower sp gr. and containing less pus and no albumen. Still slight tenderness in public region.

23rd. General condition good, no blood now, but still pus.

25th. Had to be sent home because of measles in Ward.

XLIV

NAME Courtauld Bland Disease _____ Age _____ Result _____



...not palpable.

December 1st, not taking milk, crying a lot and
...and miserable.

Urine contains a copious deposit of pus and is
...with short bacilli, a trace of albumen, it is
...in reaction. Given Pot. Carb. and Pot. Cit. 20
grs. 2 times.

December 1st. No definite signs of lungs now
although breathing jerky, temp. is certainly not due
to lung infection. Very pale and thin, marked retraction
of lower ribs.

December 1st, urine alkaline with less pus. Child
looking better, and has more sleep.

CONSTANCE BLAND, aet 1 1/12.

2 Whitebare Mews,

New End, Hampstead.

Admitted December 2nd, 1910. Discharged December 23rd, 1910.

Previous health good, 6 weeks ago began to suffer from sickness and diarrhoea and since then has been wasting; has had a cough for a fortnight, and has gone off her food. The diarrhoea is not so bad now and there has been no sickness for a fortnight.

A pale, thin child with slight signs of rickets, a few creps in both axillae, and at right base posteriorly abdomen distended.

Spleen palpable.

December 3rd, not taking well, crying a lot and looks white and miserable.

Urine contains a copious deposit of pus and is crowded with short bacilli, a trace of albumen, it is acid in reaction. Given Pot. Acet. and Pot. Cit. ad grs x. 4 hourly.

December 5th. No definite signs in lungs now although breathing jerky, temp. is certainly not due to lung condition. Very pale and whiny, marked refraction of upper lids.

December 8th, urine alkaline with less pus. Child looking better, and has more colour.

December 10th. Motions contain mucous and are still loose. Child is unhappy and has still got a haggard look about the face. No dysuria or marked frequency. Abdomen distended, spleen and liver still +

Urine has been alkaline for 4 days, but contains a considerable quantity of pus and bacilli.

Alkalies stopped given Urotropin grs v. 4 hourly.

December 12th. Much less pus to-day.

December 14th. Urine acid, clear a little pus.

December 17th. Still some pus, and child is still fretful. Urotropin stopped.

December 23rd. Urine very much clearer, very little pus, general condition very much improved. Discharged.

NAME Florence Gilbert.

July

DATE	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
TIME																					
C41° F 106																					
105																					
40° 104																					
103																					
39° 102																					
101																					
38° 100																					
99																					
98																					
37° 97																					
96																					
36																					
Pulse M	120	108	120	108	112	114	84	112	88	88	96	108	84	96	96	86	84	84	100	88	86
E	120	112	116	128	108	120	108	96	96	96	108	88	88	88	88	88	84	88	88	86	86
Resp. M	2	25	36	36	32	28	28	26	28	28	24	24	24	24	24	24	26	24	24	24	24
E	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Motions	0	1-1	1-1	0	1-0	1-1	0-1	0-2	0-1	0	1-1	0	1-1	0-1	1-0	1-1	0-1	0-1	1-1	1-0	0
Urine, azs																					
Sp. Gr.																					
Reaction		ac.					ac.			ac.				alk.				alk.			alk.
Chlorides		-					-			-				-				-			-
Albumen		tr.					tr.			tr.				tr.				-			-
Diagnosis		+					+			+				tr.				tr.			tr.

General Practitioner, L. J. [illegible]

Acetone

Pus

Urine also. Gr. pus cells, organisms. There was some difficulty in getting specimens. One was got on 11th day and organisms were seen as to E. Coli cult. Put on Protargin and Pot. Cit. (see chart). Urine finally got and not vomit in hospital. Was not well. Fever stilling child got perfectly well ultimately but though the pus was diminished it did not disappear and there were still numerous organisms in the urine when discharged.

FLORENCE GILBERT, aet 1 1/12.

Admitted 4th July, 1912. Discharged 25th July 1912.

Complaint: vomiting.

Five weeks history of persistent vomiting; 3 weeks ago was taken to Baby Clinic, put on milk and Barley Water, then Barley water only, slight convulsion twice and loud screaming.

Mother thought she was hungry and gave her bread and dripping. She vomited this.

The bowels were constipated.

On admission: Patient fairly well, nothing to be made out on examination.

Urine alb. tr. pus cells ~~organisms~~. There was some difficulty in getting specimens. One was got on 11th July and organisms were seen to be B. Coli ~~cult.~~

Put on Urotropin and Pot. Cit. (see chart). Cried freely but did not vomit in hospital. Was not well.

Under alkaline child got perfectly well clinically but though the pus was diminished it did not disappear and there were still numerous organisms in the urine when discharged.

Sept.

NAME Gladys Stevens.

DATE	9.	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
TIME	9.4																				
C41° F 106																					
105																					
40° 104																					
39° 103																					
38° 102																					
37° 99																					
96																					
36...97																					
Pulse	M 128 E 145	M 112 E 80	M 88 E 68	M 80 E 56	M 76 E 100	M 96 E 68	M 80 E 80	M 72 E 80	M 64 E 88	M 68 E 76	M 56 E 68	M 56 E 64	M 80 E 68	M 68 E 72	M 52 E 88	M 56 E 88					
Resp.	M 36 E 32	M 36 E 24	M 34 E 20	M 24 E 24	M 24 E 28	M 24 E 24	M 24 E 24	M 20 E 24	M 20 E 24	M 20 E 24	M 20 E 24	M 24 E 24	M 20 E 24	M 24 E 24	M 20 E 24	M 18 E 24					
Motions	0	1	2	2	1	4	0	1	1	3	3	1	2	0	2	2					
Urine, ozs																					
Sp. Gr.																					
Reaction		acid			acid		acid						alk.		alk.						
Chlorides		tr.			-		-						-		-						
Albumen		+					+						sl. tr.		-						
Diaphanous		+					+						tr.		tr.						

GLADYS STEVENS aet 3 10/12.

Admitted 9th September, 1912. Discharged 25th September, 1912.

Complaint: Stomach ache, drowsiness, whiney.

History: Well till September 4th, when she became feverish. Given Cast. Oil but bowels did not move well. No motions since 7th. Feverish, drowsy, whiney and discontented. No cough. Nausea but no vomiting.

On admission: Feverish and ill looking; breathing quiet. irritable, resents interference very much.

Nil in chest, heart or abdomen.

Incontinence of urine, pus cells.

Path. report Film. Many pus cells, numerous bacilli.

Cult. coliform organism identified as B. Acidi Lactici.

After, bowels moved, temperature and pulse came down.

Put on Pot. Cit grs x.

Urot. grs v. t.i.d. and milk stopped.

Given soups.

15th. Temperature remained normal, much better and less fretful.

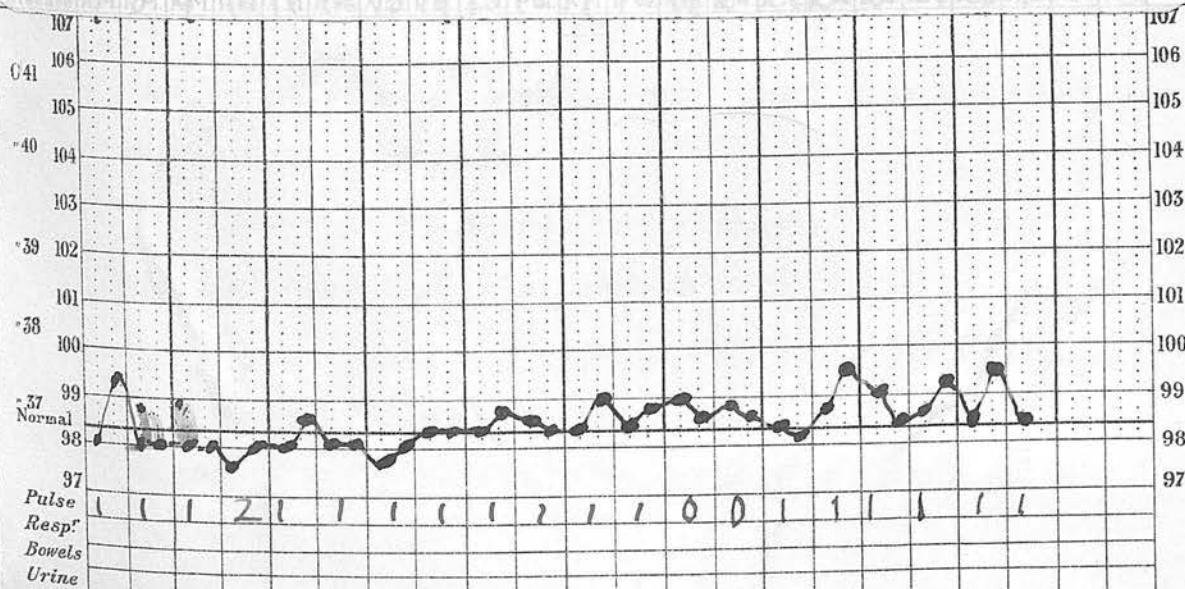
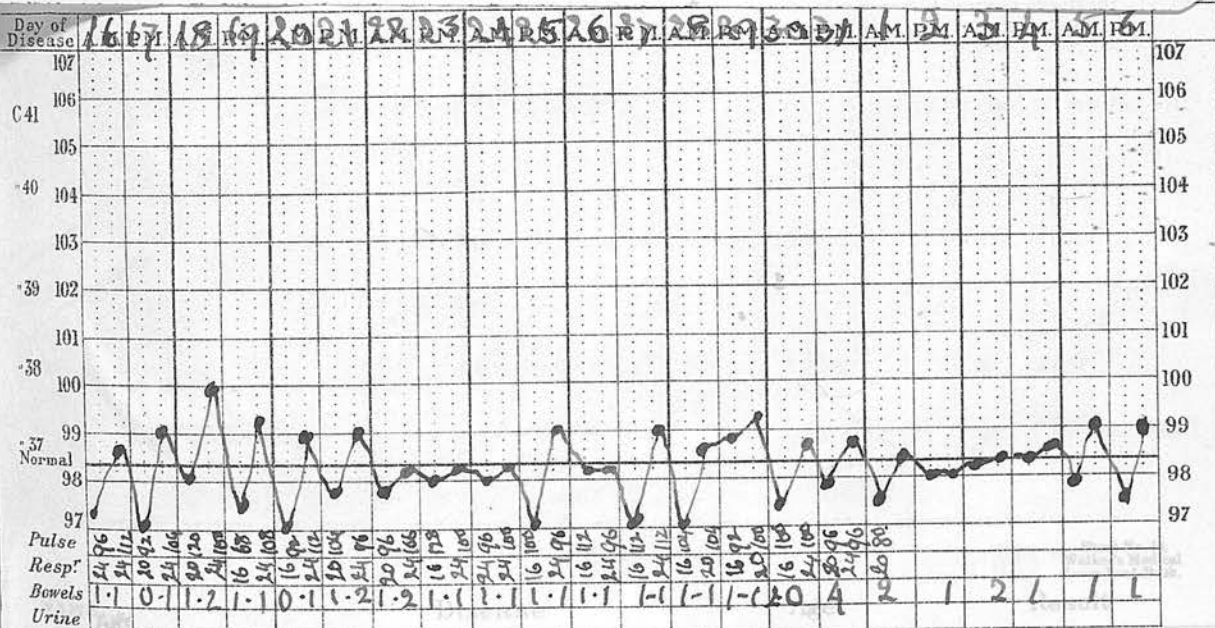
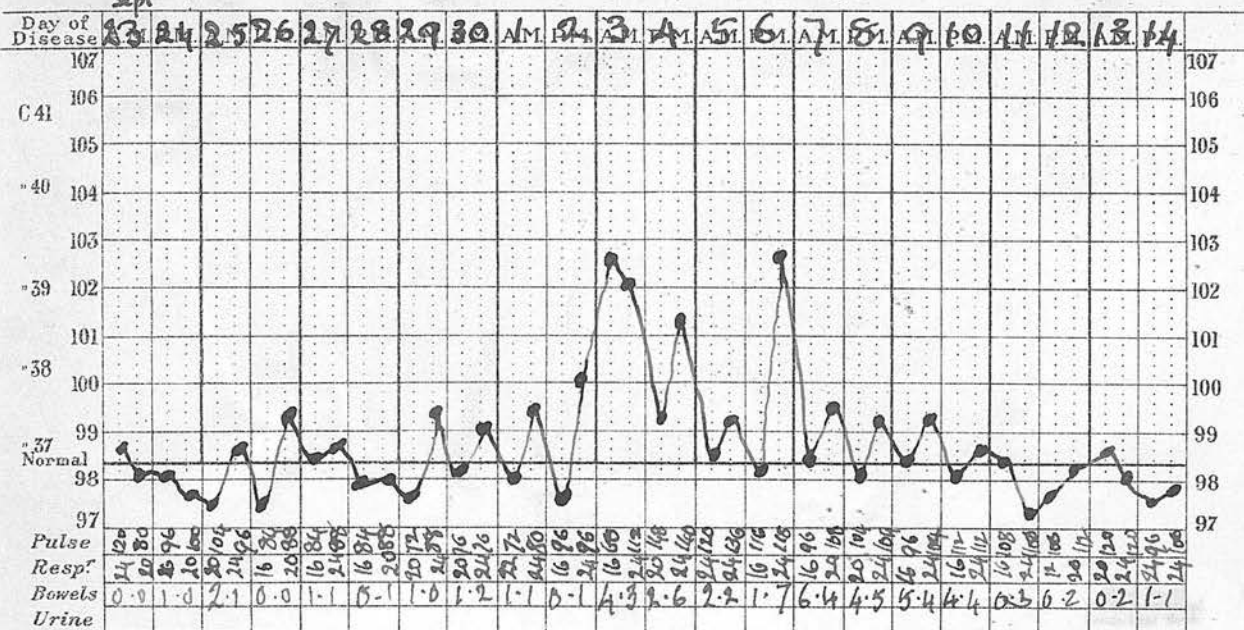
18th. Much better clinically. Path. report film a few pus c cells. No organisms.

Cult. a few colonies of B. ac. lac.

23. Still incontinent, otherwise well. Very few pus cells. No organisms seen.

25. To Convalescent Home, where she stayed 14 days, did well and came back, urine clear.

NAME	Disease	Age	Result
844 Hilda Cohen			



HILDA COKER aet 6 3/12.

4 Bettivere Street, West Kilburn.

Admitted 21st September 1912 to Convalescent Home
30th October, Discharged 26th November.

Complaint; Pain in stomach, and legs.

In August had an attack of gastro-enteritis with severe pains in the abdomen, which lasted about three weeks. She made a fairly good recovery, but was pale and fretful.

A week ago she again had abdominal pain, accompanied by Diarrhoea and vomiting.

The child was feverish from time to time and irritable. The diarrhoea and vomiting have so far passed off, but child is ill and has no appetite.

Has had several previous attacks of gastro-enteritis, measles at 3 years old.

Family History: unimportant

A pale, weakly child, very irritable and strongly resents being handled.

Nil found abnormal on examination; marked cardiac irregularity of the youthful type.

Urine acid, alb. trace, deposit of pus cells and bacilli which on being cultivated and subjected to the sugar tests prove to be *Bacillus acidilactici* of Huppe.

September 26th. No sickness or diarrhoea and no pain now, child is very irritable and disagreeable, frets a lot.

Attempt made to treat by dietary measures. Milk stopped entirely and child put on soups, chicken tea etc.

29th. No gastro-intestinal disturbance. Urine acid with quantities of pus and bacilli.

2nd. Temperature up to-day, accompanied by an attack of diarrhoea, with some pain and tenesmus. Nothing in heart or lungs.

5th. Sausage shaped tumour in left iliac region. Diarrhoea continues with considerable tenesmus.

Given Tr. Belladonna m v. t.i.d.

9th. Still a persistence of diarrhoea, but temperature is settling again, the urine remains as before, copious pus and bacilli.

As the child is very far from well on the diet of soups and as this has made not the least difference to the bacilli in the urine, was put on to an ordinary milk diet.

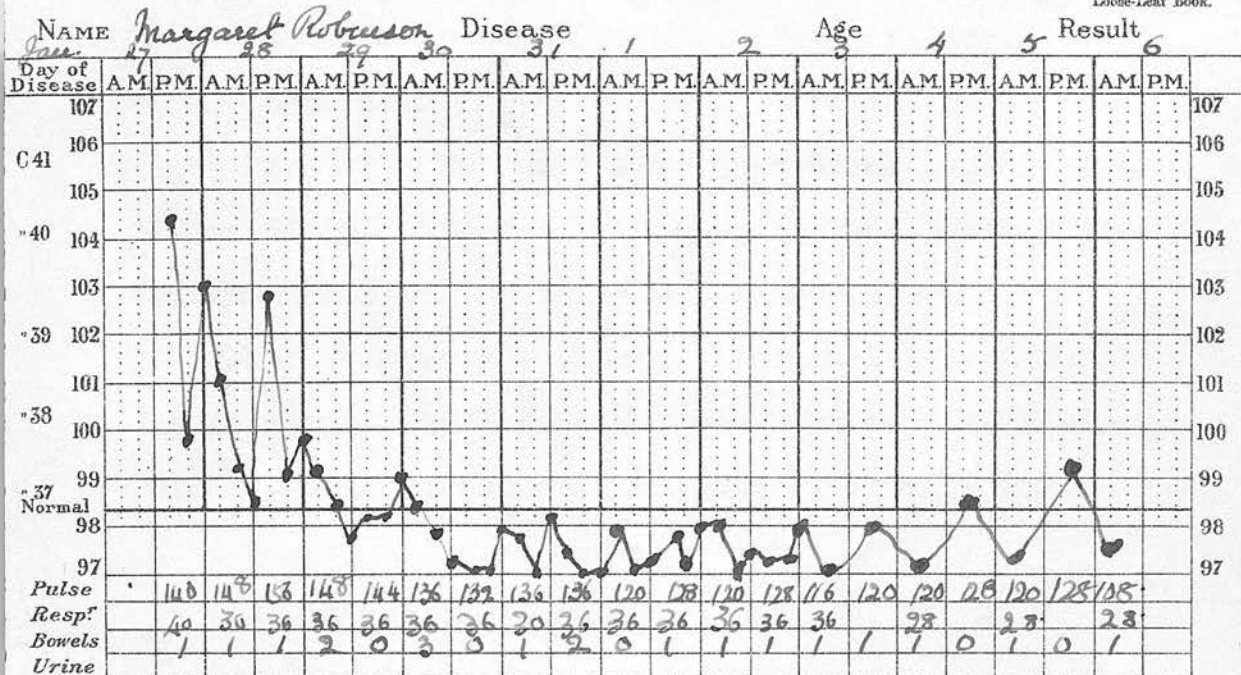
14th. Diarrhoea quite stopped and child is improving, but is still fretful and irritable and urine is I.S.Q.

18th. Child fairly well, temperature satisfactory still fretful.

26th. Child still fretful, and irritable, Urine still shows pus and bacilli as plentiful as ever,

so put on Pot. Cit. grs xx. t.i.d.

28th. Went to Convalescent Home where child made an uneventful recovery. The urine became alkaline and the pus and bacilli gradually cleared off, and she went home on November 26th a different child, having entirely lost her irritable disposition.



Child very restless and irritable, but in spite of this did not lose his appetite.

Child is obviously rickety only a few weeks, rickety, large square head, with large fontanelle.

Spines large. Otherwise no physical signs.

Urine acid, albumen trace, sugar - small +

Small on cultivation gives pure culture of a coliform bacillus.

Gave Pot. Bromide grs 2 daily.

R. Pot. Cit.

Pot. Acet. ad grs 5.

Syr. Aurantii 5.

24. ad 31 4 hourly.

24. Temperature is now high and restful.

Urine now albumen is small + sugar - small +

Urine now albumen is small +

MARGARET ROBINSON, aet 11/12. 17 Bath Street, Poplar.

Admitted 27th March, Discharged 6th April, 1912.

Complaint: Diarrhoea and vomiting.

History: Ten days ago began to have diarrhoea and vomiting. Treated by mother for 5 days. It was recommended that the child should be weaned. The diarrhoea stopped a week ago. The child was more ill the following three days and has been very weak since. Still vomiting about half an hour after each meal.

Family history: unimportant.

On admission Temperature 104.4 P. 140 R. ?
crying.

Child very restless and irritable, but in spite of high temperature did not look unduly ill.

Child is obviously rickety only 4 teeth, rickety rosary, large square head, with large fontanelle.

Epiphyses large. Otherwise no physical signs.

Urine acid, albumen trace, pus + bacilli +
Bacilli on cultivation give pure cultures of a coliform organism.

Given Pot. Bromide grs x statim.

~~R.~~ Pot. Cit.

Pot. Acet. ad grs v.

Syr. Aurantii m v.

Aq. ad zij 4 hourly.

29th. Temperature is down much less restless.

Still a trace of albumen in urine with pus and bacilli present; in urine now alkaline.

30th Sleeps a lot, but when it wakes up is irritable. Temperature now satisfactory, has slight pain on passing water. The child has considerable frequency passing small quantities only at a time. Given Mast 6℥. Ric. @ Salol ʒj. t.i.d.

1st February. Still bad tempered. Urine alkaline. Contains less pus than it did.

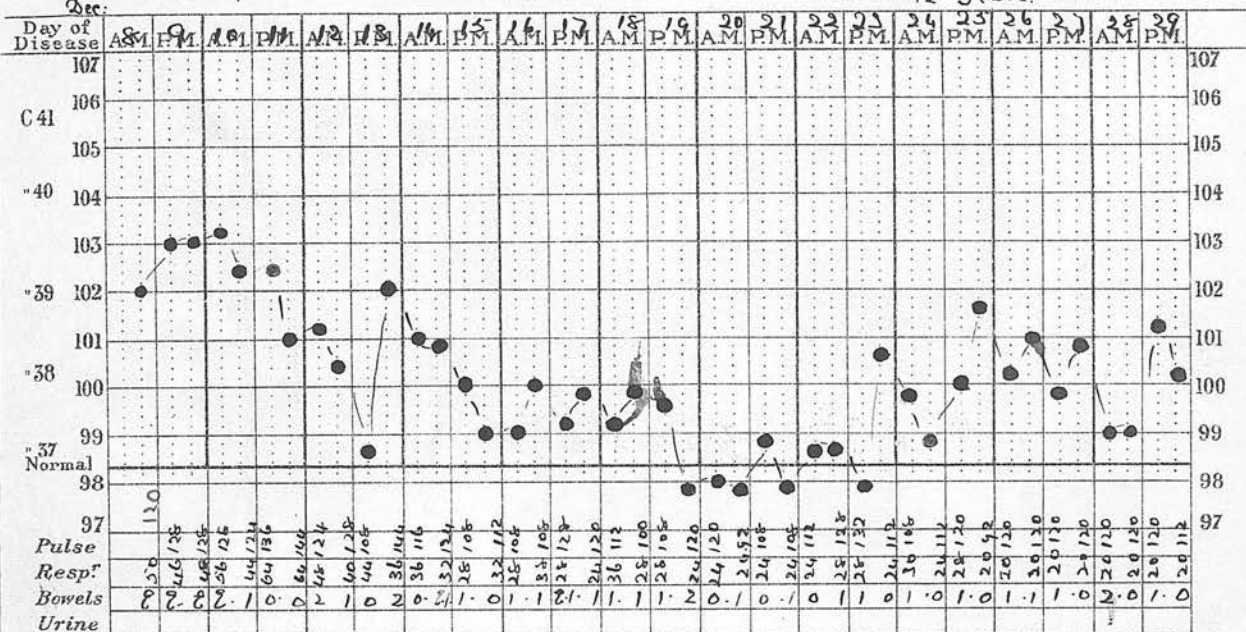
6th. Discharged very much better, pus has disappeared from the urine.

NAME Leslie Hodgden

Disease

Age 4 $\frac{6}{12}$ years.

Result

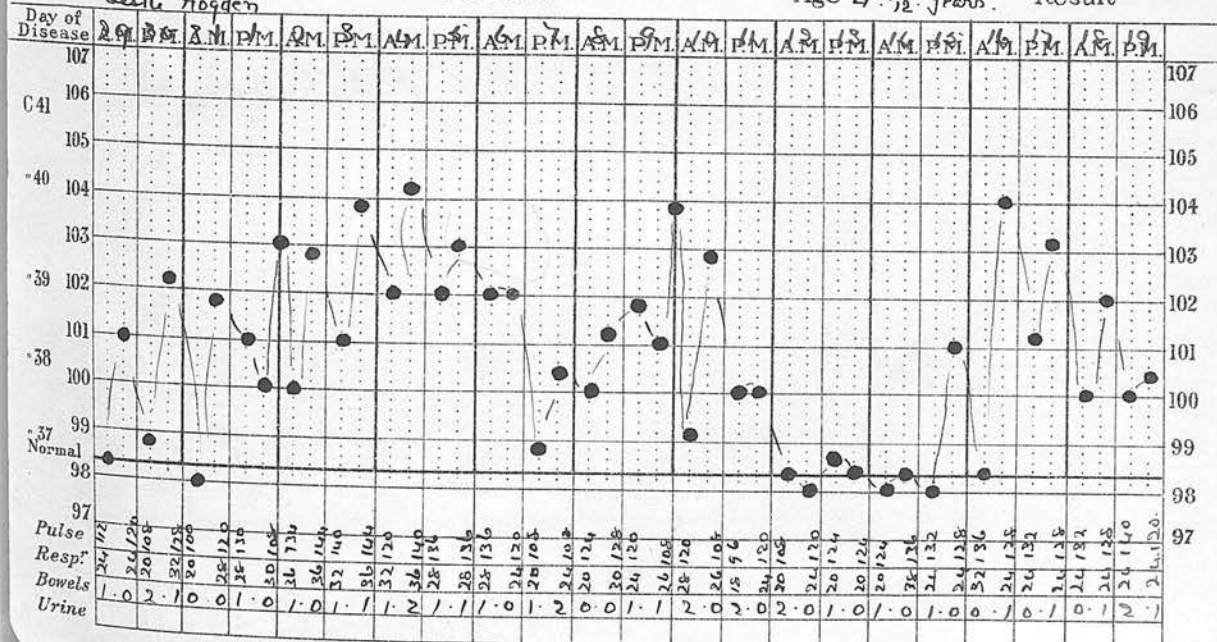


NAME Leslie Hogden

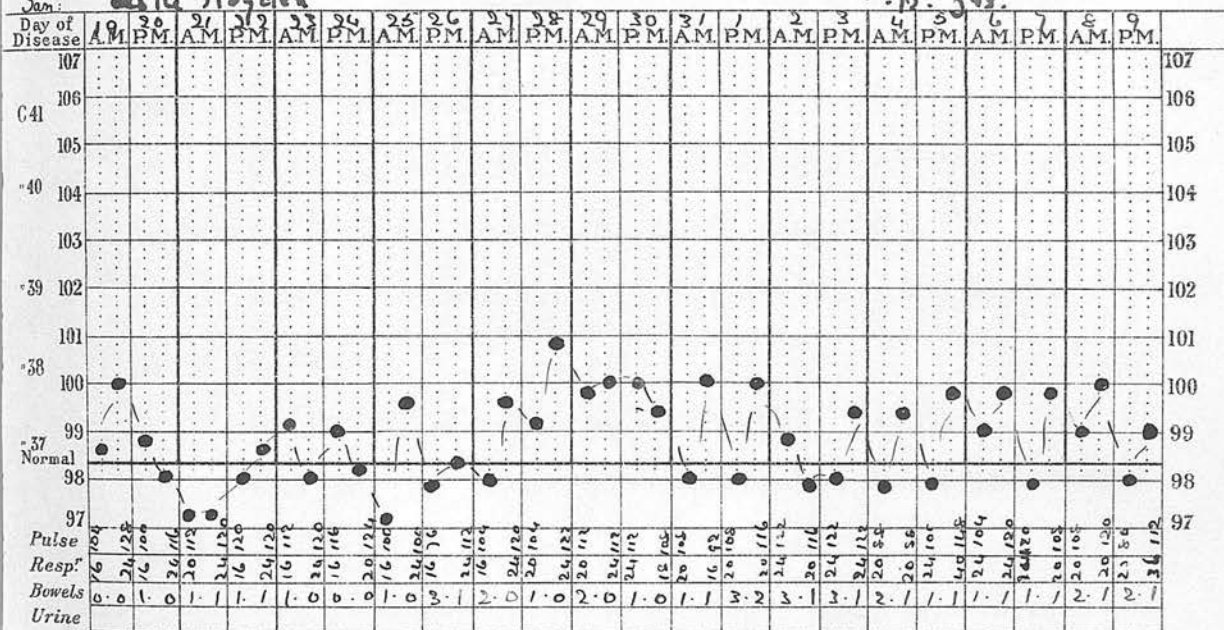
Disease

Age $4 \frac{6}{12}$ years.

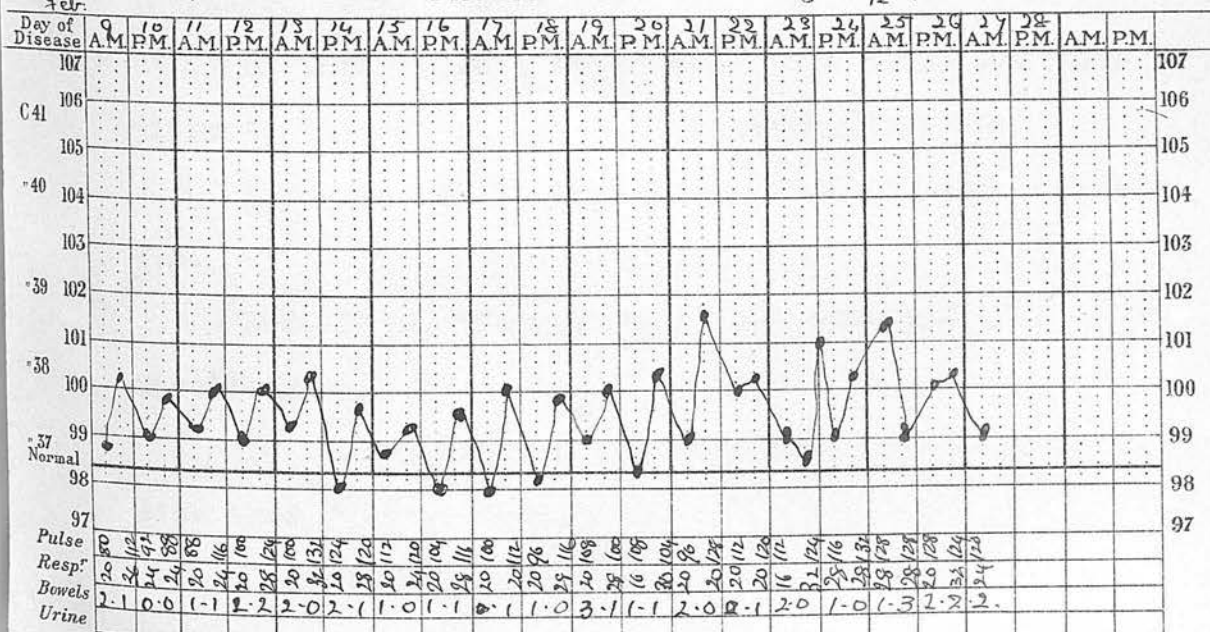
Result



Result



Result



LESLIE HOGDEN aet 4 years. Admitted 8th December 1912.

The patient was admitted at 11 p.m. reported to be suffering from intestinal obstruction. The bowels have only moved slightly since Wednesday despite the use of aperients and enemata.

Well up till Wednesday. On Friday pain in abdomen, began, lasting all Saturday and Sunday.

Was sick once on Sunday morning. No appetite, very thirsty.

On examination T. 102. P. 128 E. 50.

The boy is in evident distress, with alae nasae moving.

The abdomen is considerably rigid all over, and there is considerable tenderness. Pain in left hypochondrium. Abdomen resonant and distended.

Left right base dull with bronchial breathing and increased vocal resonance.

On 10th, bowels moved once with enema and once without, this first movement since admission.

Left base dull, bronchial breathing and increased V.R.

Dec. 13th. Temperature came down and lung resolving.

Dec. 14th Passed two offensive mucoid motions, sick once during night.

Dec. 16th. Lung quite cleared up. but child miserable, very thirsty, green stools.

Dec. 27th. Child went on in much the same way, fretful ill with temperature inclined to swing and nothing made out to account for it.

Widal was done which was negative.

Jan. 2nd. The temperature is swinging greatly and the child is still dull and ill.

A coliform bacillus was found in the urine, and he had marked incontinence, the last two nights, given Urotropin grs v. Pot. Cit. grs x 4 times a day.

Jan. 4th. Temperature still swinging high, child flushed and ill.

Jan. 5th Given Coli vaccine 10,000,000

Jan. 6th. Temperature down.

Jan. 11th. Temperature still swinging though child seems a little better.

Jan. 12th. Vaccine 20,000,000 given this morning.

Jan. 13th. Temperature down, remained down till 15th when another 20,000,000 were given.

After this temperature went up and remained swinging till 20th.

On 22nd, child reported in good condition, but there has been no change in the urine from all this.

Jan. 23rd. Given vaccine 40,000,000.

Very well till January 29th, when temperature rose and continued to swing slightly till February 2nd, the child not being so well.

Child went on well and as the urine still contained pus and bacilli, it was thought well to obtain another vaccine, while this was being obtained however the urine became sterile and has remained so since, the child being in excellent health.

From 194 - 195. She was restless and cried a lot. During the next week she took no food and slept badly.

There was no vomiting and the bowels were acting normally.

During the three days there was pain and swelling in micturition and the perineum was stained brown with a foul odour.

Physical examination was negative.

The urine was foul smelling, contained pus and coliform organisms, but no streptococci. Urotropin and 1:1000 was given and the temperature rapidly dropped reaching normal on April 20th.

On the day the urine was turbid, foul smelling and in reaction, but contained less pus and organisms than previously.

The organism was not typical of K. Gold as autogenous vaccine was prepared.

On May 11th 10,000,000 were given. By this time the temperature had been normal some time, and the child was well, but the urine still contained pus and organisms.

I
MORSE AMERICAN JOURNAL of MEDICAL SCIENCES.

A girl aet 11/12 was taken ill on April 4th and during the next three days the temperature varied from 104 - 105. She was restless and cried a lot. During the next week she took no food and slept badly.

There was no vomiting and the bowels were acting normally.

During the three days there was pain and ~~straining~~ on micturition and the napkins were stained brown, with a foul odour.

Physical examination was negative.

The urine was foul, smelling, contained pus and coliform organisms, but no albumen. Urotropin grs β . t.i.d. was given and the temperature rapidly dropped reaching normal on April 20th.

On the day the urine was turbid, foul smelling acid in reaction, but contained less pus and organisms than previously.

The organism was not typical of B. Coli so autogenous vaccine was prepared.

On May 11th 10,000,000 were given. By this time the temperature had been normal some time, and the child was well, but the urine still contained pus and organisms.

On May 13th the temperature rose to 103 and continued elevated in spite of injections of 50,000,000 on the 15th and 100,000,000 on the 18th, after which it dropped to normal and the urine began to clear.

The injections were continued but the temperature was elevated again between June 3rd and 9th, but on the 9th the urine was free from pus and after this the temperature remained normal and the child was quite recovered.

A case cured by perseverance with the vaccine treatment.

The bladder was irrigated with iodoform solution without good effect.

The appendix was removed on July 7th, and this was found to be long and adherent to the lower pole of the right kidney.

Thereafter the patient completely recovered.

McCRAE PRACTITIONER, 1910.

IV. Girl aet 6 1/12.

On February 3rd 1908, was admitted to hospital. For four years had had frequency and pain on micturition and this had got worse recently.

Now the frequency and pain is very severe.

The urine is acid, contains albumen pus and B. Coli.

She was cystoscoped and nothing was found.

The bladder was irrigated with Iodoform emulsion without good effect.

The appendix was removed on July 7th, and this was found to be long and adherent to the lower pole of the right kidney.

Thereafter the patient completely recovered.

There was a steady improvement and she was discharged a month later, having no symptoms and the urine being quite clear.

The temperature during admission was never above 99 and there were no rigors.

The amount of pus varied from day to day.

A complete cure by means of irrigation.

LII

McCRAE PRACTITIONER 1910.

I. A girl aet 7 had complained of incontinence and frequency of micturition. There had been a history of rigors.

When examined there was nothing to be found.

The urine was cloudy became offensive on standing and contained albumen pus and B. coli.

She was given Soda sal.

Soda Benz.

Soda Bicarb. aa grs v; t.i.d. for

a week.

The symptoms were improved but the urine still contained pus, albumen and bacilli.

Then given Pot. cit.

Pot. Acet. aa grs x.

Aq. anisi zij 4 hourly.

There was a steady improvement and she was discharged a month later, having no symptoms and the urine being quite clear.

The temperature during admission was never above 99 and there were no rigors.

The amount of pus varied from day to day.

A complete cure by means of alkalies.

LIII
ATTRIDGE WILLIAMS B.M.J. 1907.

A baby aet 7/12 had infantile scurvy followed by gastro-enteritis, and broncho-pneumonia.

She then developed great pain on micturition and the quantity of urine passed was much diminished and there was marked tenderness over the bladder, the temperature was 103 and continued high and swinging.

The urine showed albumen and pus.

In 24 hours after giving helmitol the temperature was normal in 48 hours the urine contained no pus and was much increased in quantity.

The case made a good recovery.

LIV

LIPPE *et al.* ARCHIVES OF PEDIATRICS 1909.

VI. Boy 1 5/12. *Child age 2 years, who suffered*

from Had suffered from intermittent fever for one *month*
month and was considerably emaciated, was irritable
and cried out in his sleep. He was incontinent both
by night and day. *during the day. It had nocturnal*

incontinence Nothing discovered on physical examination. *temperature*
Urine showed albumen pus and bacteria. He made a good
recovery on Urotropin. *a few red blood corpuscles,*
a few hyaline and epithelial casts, cultures show bacillus
coli in pure culture.

The pus in the urine varied very greatly, from
day to day, and the physical signs and symptoms pointed
to a combination of pyelitis and cystitis. The
temperature, however, was not raised and the child was
not severely ill, although irritable and fretful. The
recovery was ultimately good. Interesting from the
presence of casts though the symptoms did not point to
severe kidney involvement.

LV

FISCHER vide ARCHIVES PEDIATRICS 1907.

II. A rickety child aet 2 years, who suffered from adenoids and recurrent coryza. Had had bronchitis for the whole winter. Child vomited frequently and has a very bad appetite. It is restless at night and over active during the day. It had nocturnal incontinence for one week and dysuria. The temperature was normal and the bowels rather constipated. Urine acid, albumen + pus ++ a few red blood corpuscles, a few hyaline and epithelial casts, cultures show bacillus coli in pure culture.

The pus in the urine varied very greatly, from day to day, and the physical signs and symptoms pointed to a combination of pyelitis and cystitis. The temperature, however, was not raised and the child was not severely ill, although irritable and fretful. The recovery was ultimately good. Interesting from the presence of casts though the symptoms did not point to severe kidney involvement.

LVI

EMMETT HOLT ARCHIVES OF PEDIATRICS VOL. XI.

III. A girl aet 9/12, healthy until 10 days before present attack when had slight ? Influenza.

Feb. 8th. 1894 had distinct rigor at 12.15 p.m. blue face, chattering of teeth and shivering of body. The child was prostrated and the rectal temperature was 104° . By 5 p.m. rectal temperature was 99 all symptoms having disappeared.

At 7 p.m. temperature normal, child sleeping well. At midnight another rigor, by 7 a.m. temperature 99.4

Nothing found on physical examination.

At 1 p.m. temperature 103 but no rigor. The temperature now fluctuated and at 10 p.m. was 105 .

When the temperature was high the child was fretful prostrated and suffered from anorexia; while it was low, child played about as usual. Was given Quinine sulphate grs ij 3 hourly by rectum.

Third day two more rigors given grs xij of Quinine by mouth in course of day.

Fourth day grs xiv quinine in day, temperature fluctuating but no rigors.

Straining and pain on micturition, but only small

quantities passed at a time.

In the evening a specimen of the urine was obtained, it was found to be very acid, containing a trace of albumen and quantities of pus. The quinine was stopped and Pot. Cit. grs ij 3 hourly was given and fomentations were applied to the kidneys.

5th day (Feb. 12th) urine greater in quantity still turbid and acid. The temperature continues to fluctuate.

Feb. 13th. Urine passed more freely still acid. General condition not so good, only taking half the normal amount of food.

Patient sleeps well, no vomiting, the bowels are regular, no drowsiness and no bladder irritation now.

The temperature still fluctuates and slight rigors often appear. The hands and feet are always cold and there is marked pallor.

February 14th, the pot. cit. was increased to grs 50 in day. Urine neutral or faintly alkaline, pus still ++ a very few granular casts.

Hypodermics of quinine were given under the impression that it might be malarial infection, and grs 80 in 24 hours were given, while grs xx - xxiv of Pot. Cit. were given daily. The quinine seemed to prevent such a large range of fluctuation in the temperature but otherwise had no effect, the urine at this time was faintly alkaline.

Sp. gr. 1007 a trace of alb. urea 3.6 grns ~~FB~~
in 24 hours. Urates phosphates and chlorides diminished
trace of blood pigment, no indican.

Microscopically very numerous pus cells, a few
R;B.Cs

A few blood and epithelial casts.

Bladder cells.

Numerous organisms.

From 17th to 22nd improved the temperature declining, on 22nd not above 100°.

The hot fomentations over the kidneys and enough Pot. Cit. to keep the urine alkaline were given and the Quinine gradually reduced to Grs vj daily.

February 23rd. Temperature up again to 103.5
No rigor and nothing found to explain the temperature.
It was, however, controlled by grs xvi of quinine in 24 hours, which was then reduced to 8 grs daily, for 4 days, then to grs 3 for 4 days. Meanwhile the child had lost $1\frac{1}{2}$ lbs of weight.

By March 1st had regained 4 oz. and was taking well. The quinine and Potash were stopped, pus cells still abundant in the urine.

In next ten days temperature 99 - 100.5 and child improved steadily.

On March 10th a slight rise in temperature. On March 12th temperature 103. Nil to be found to explain this and quinine was given in small doses for a

fortnight. Urine as before.

In next two weeks the child gained $1\frac{1}{2}$ lbs and improved generally.

On May 15th, child in excellent health but urine still contains some pus cells.

On September 15th child still well in spite of persistence of a few pus cells in urine.

located in the right lumbar region, and a stone in the kidney was suspected. There was a small quantity of pus in the urine.

The right kidney was thereupon explored but no stone was found and the wound was closed up. The attacks of vomiting went on as before and the urine was again examined and pus and B. coli were found. The child was put on Urotropin and made an excellent recovery.

THURSFIELD HOSPITAL VOL XLV.

HARTWELL BOSTON MEDICAL AND SURGICAL JOURNAL.

I. Girl aet $11\frac{1}{2}$ years.

For two years had suffered from recurrent headaches, with vomiting and fevers coming on about every fortnight.

9 months ago had had severe abdominal pain located in the right lumbar region, and a stone in the kidney was suspected. There was a small quantity of pus in the urine.

The right kidney was thereupon explored but no stone was found and the wound was closed up. The attacks of vomiting went on as before and the urine was again examined and pus and B. coli were found. The child was put on Urotropin and made an uneventful recovery.

On May 6th the urine was acid sp. gr. 1017 a trace of albumen a rare leucocyte and mucus was all that was seen microscopically. The patient was discharged.

On February 2nd 1909 she was readmitted giving a history of having had several attacks of pain in the right loin with vomiting fever and frequency of micturition, during the previous 3 years.

VIII
Ten days previously had had a severe attack in
which the frequency of micturition was more marked than
usual.
HARTWELL BOSTON MEDICAL AND SURGICAL JOURNAL.

On Physical examination the right rectus was
A girl aet 10 was admitted on April 2nd, 1906
found to be rigid especially in the upper quadrant
having suffered for 4 months with severe attacks of
pain in the right loin.

5 days previously had had some frequency of
micturition, soon followed by chill with pain in the right
loin later. The physical examination was negative but
the urine was thick acid in reaction, sp gr. 1015,
albumen trace, and pus, B. coli were obtained on culti-
vation. The temperature was 102 and Pulse 110.

The cystoscope showed a normal bladder.

She was given Urotropin and kept in bed and after
a week the temperature and pulse became normal and the
urine gradually got clearer.

On May 6th the urine was acid sp. gr. 1017 a trace
of albumen a rare leucocyte and mucous was all that was
seen microscopically. The patient was discharged.

On February 2nd 1909 she was readmitted giving
a history of having had several attacks of pain in
the right loin with vomiting fever and frequency of
micturition, during the previous 3 years.

Ten days previously had had a severe attack in which the frequency of micturition was more marked than usual.

On Physical examination the right rectus was found to be rigid especially in the upper quadrant

Temperature 103, P. 128 cured after 2 months.

Urine was acid. Sp. gr 1024, contained a trace of albumen and pus, and B. coli was obtained culturally.

The temperature and pulse soon fell and she was discharged on February 20th with the symptoms relieved though the state of the urine was not improved.

From February 13th to August 6th, was treated with vaccines. On August 6th she got diarrhoea and soon after an attack of pain in the right loin. The vaccines were omitted and one month later was readmitted for sudden severe pain and vomiting. There was tenderness and pain in the right kidney region in front and behind, the urine was acid sp gr. 1013 contained pus a few R.B.C. and a trace of albumen, and a very profuse growth of B. coli was obtained culturally.

The temperature and symptoms subsided and she was treated for two weeks with copper sulphate but the urine was not improved at all.

the urine and the fact that local treatment cured the trouble.

DR CLOPATT REVUE DES MALADES D'ENFANCE 1896.

A girl aet 5 was delicate but enjoyed fairly good health, until the autumn of 1895 when she had persistent diarrhoea, which was cured after 2 months.

At the beginning of 1896 had whooping cough and during February and March had attacks of fever and vomiting especially at nights.

She was emaciated and had a poor appetite.

Urine was foul smelling which was so pervading that the chamber had to be emptied at once.

Nothing was found on physical examination nor was there any vulvo-vaginitis.

A catheter specimen of urine was acid, turbid and offensive and showed a glistening sheen.

It did not become clearer on filtering.

Microscopically pus and motile organisms were seen. She was given Salol internally for 8 days without effect, then the bladder was washed out with a .05% solution of Ag NO₃ and later with a .1% solution and the urine became sterile and the child recovered.

Interesting from the unusually strong smell of the urine and the fact that local treatment cured the trouble.

A girl aet 2/12 was suddenly taken ill with fever and vomiting. She was very languid and the bowels which had previously been regular were now confined. She was tender to the touch in the back and cried when she made water; three days previously she had had some twitching but no definite fits.

Temperature was 101.4 P. 128 R. 40 the spleen was slightly enlarged but nothing else was made out on physical examination.

The urine was acid, slightly offensive and turbid contained a trace of albumen pus and organisms, of a coliform nature, but no casts or tubercle bacilli.

The child made a rapid recovery in 14 days without treatment.

January 9th. Temperature normal, child looks
better but is still rather fretful at times. The
MYRTLE DENTJE 1 4/12. 1905. Urine still contains pus

Given 118 Southam Street, Upper Westbourne Park.

Admitted January 6th, 1905. Discharged February 2nd.

Has been unwell for the last four months, very
thirsty, occasional convulsions, wasting and getting
weak. All these symptoms have increased lately.
Passes a large amount of water at least passes it very
frequently. No vomiting. Appetite very poor. Previous
health and Family History nothing to note.

General Health poor.

As an Out-Patient was brought with history of
great thirst.

At next visit urine found to contain a substance
which reduced Fehling.

At next visit no reduction of Fehling. In ward
no reduction but pus in an acid urine. The abdomen
is rather prominent. Liver especially at lobe and
spleen slightly enlarged.

Urine sp. gr 1015. No sugar. Tr. Alb. pus
present. It. Bacillus found to be B. Lactis Aerogenes.

While temperature was up child was restless
and irritable and she is a pale weakly child. Motions
rather undigested.

Given milk and Barley Water.

January 9th. Temperature normal, child looks better but is still rather fretful at times. The bowels are rather confined. Urine still contains pus

Given Mist Ol Ric. zj t.i.d.
Urotropin grs jj
Aq. Meth pep 3j
Aq. ad 3j 6 hourly.

January 12th. Child much better, no special thirst, urine still contains pus.

January 14th. Child still improving.

January 16th. Mist ol. Ric. and Mist urotropin stopped. Given Pot. cit.
Pot. Bicarb ad grs x.
Glycerinewix.
Aq. ad 3ij 6 hourly.

January 17th. Has gained 8 oz. condition good. Urine still contains pus. Has passed rather more and is thirsty.

January 21st. Urine still acid, mixture 4 hourly. Child looks well, eats and sleeps well and is comfortable.

January 24th. Temperature 101 last night child sick once no rigor, urine still acid, containing pus.

January 25th. Child sick again.

January 26th. Again sick but seems none the worse of it. Bacillus found to be B. Lactis Aerogenes.

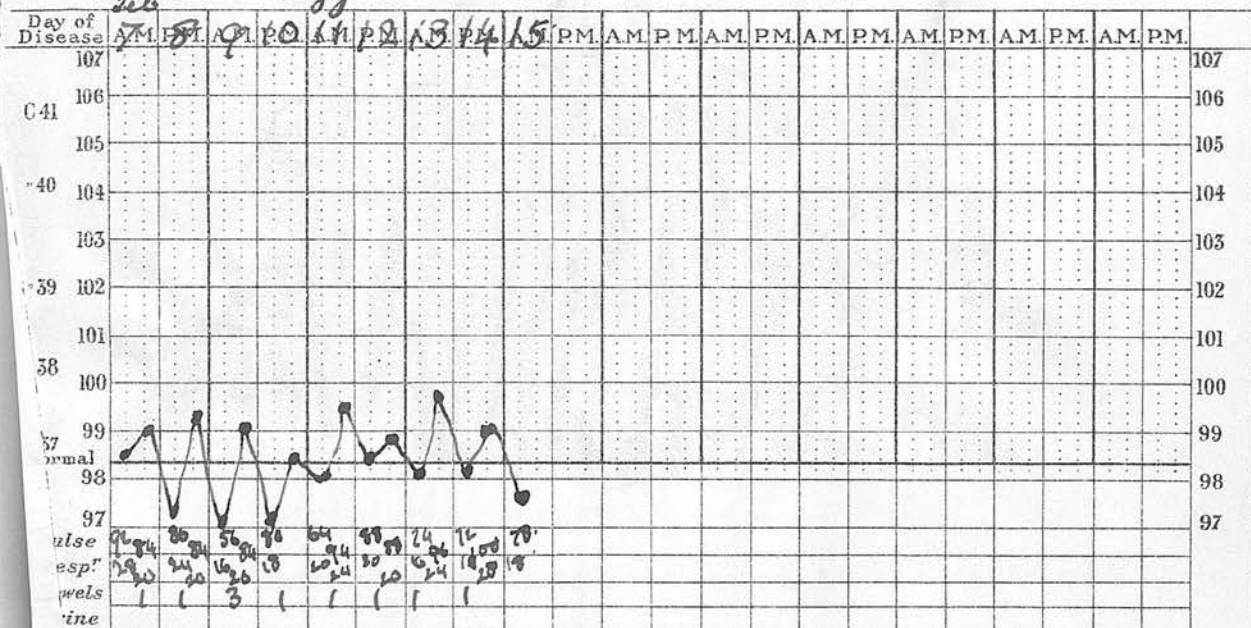
February 2nd. Discharged quite well to all appearances, but urine is still acid and contains pus.

NAME Sarah Fagg

Disease

Age

Result



Generally nothing to note on physical examina-

Urine sp. gr. 1016 Acid, contains a considerable

quantity of pus and trace of albumen.

Given 3000 Sal grs x.

Sol. Benzoate grs x.

Ext. Glycerinal liq. M x

Lg. ad grs 1-1-0.

February 12th. Condition quite unchanged, urine still red with pus.

February 14th. Discharged. Urine much clearer than on 12th, pus. General condition is excellent no pain and no frequency of micturition.

SARAH FIGG aet 5. 47 Lansfield Street, Kilburn Lane.

Admitted February 7th 1905, discharged February 15th, 1905.

For about 10 days has had severe pain in passing water and has gradually got worse in this respect. Passes water frequently, and often only a few drops at a time. The appetite is poor. She sleeps badly, the bowels are regular, no vaginal discharge.

Previous health Scarlet fever previously.

General Health, good.

Complains of indefinite pain in the region of the bladder which is not increased on micturition.

Otherwise nothing to note on physical examination.

Urine sp. gr. 1018 Acid, contains a considerable quantity of pus and trace of albumen.

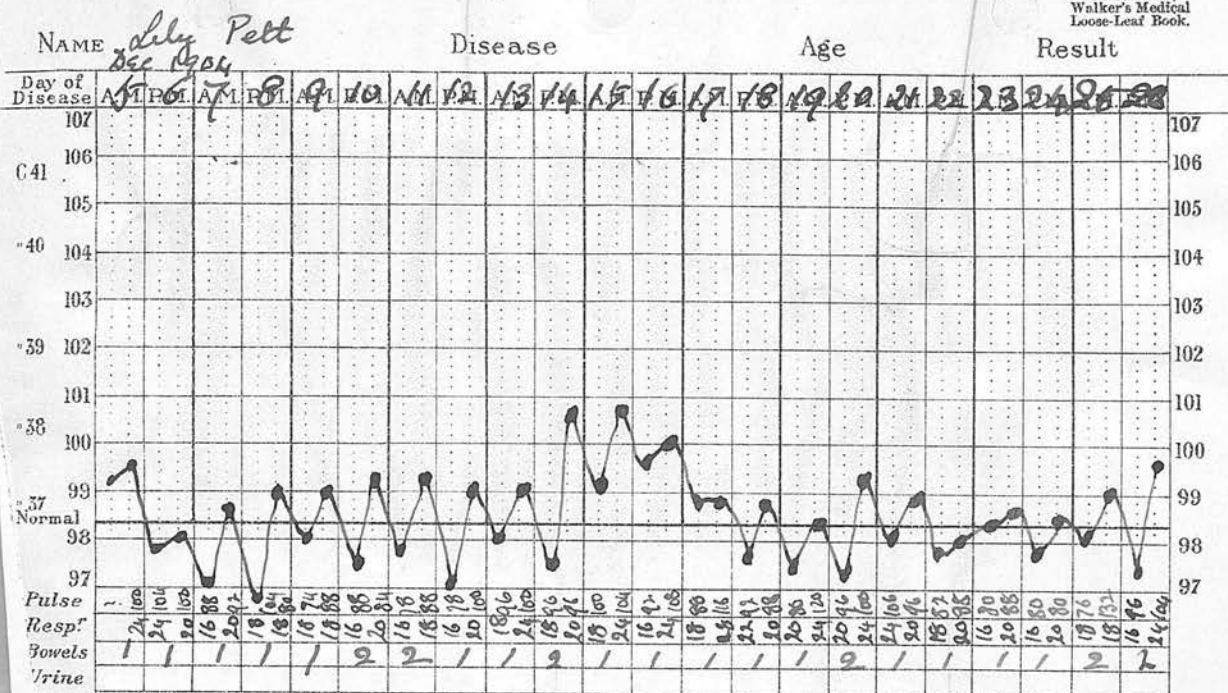
Given Soda Sal grs x.
Sod. Benzoate grs x.
Ext. Glycorrhiz liq M x
Aq. ad zij t.i.d.

February 12th. Condition quite unchanged, urine still contains pus.

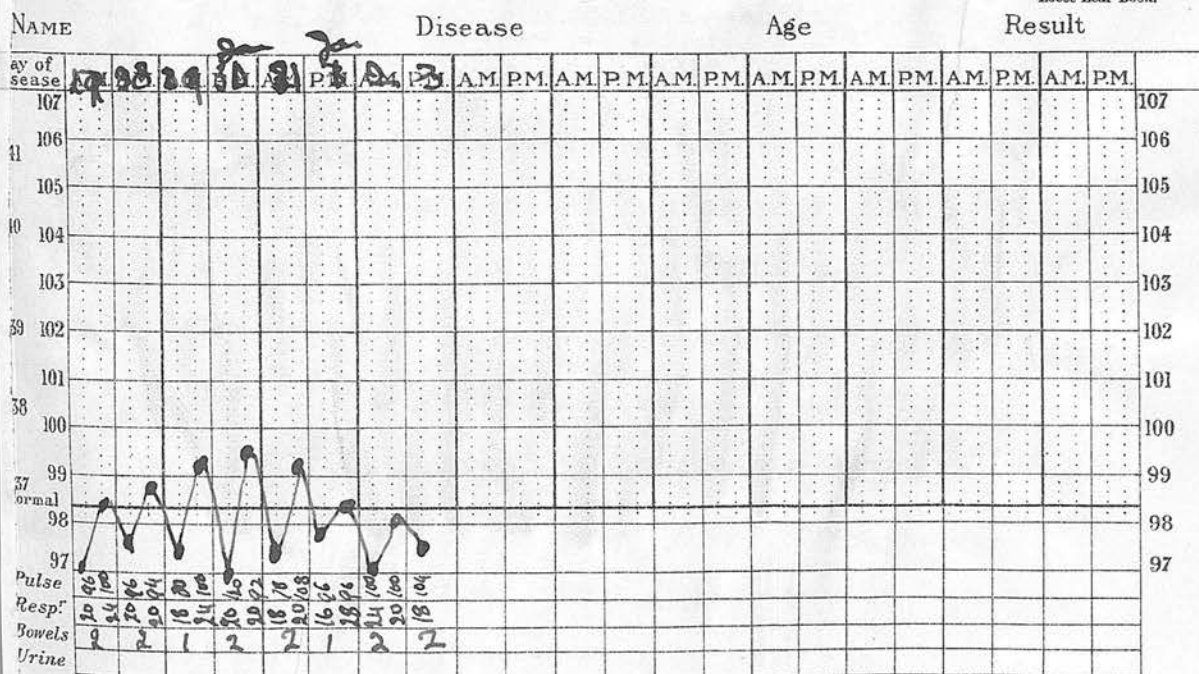
February 14th. Discharged. Urine much clearer some, but much less, pus. General condition is excellent No pain and no frequency of micturition.

111

Sheet No. 12.
Walker's Medical
Loose-Leaf Book.



Sheet No. 12.
Walker's Medical
Loose-Leaf Book.



LILY PETT aet 7. 39 Cobble Road, Shepherd's Bush.

Admitted December 5th 1904. Discharged January 3rd 1905.

Seven weeks ago began to have headache, loss of appetite and general langour, which have continued up to the present. She has been passing a large quantity of water, chiefly in day, but to some extent at night too. Very thirsty. Wasting rapidly. Has been rather puffy about face, and one failed to get boots on because of swelling of ankles and feet. Got wet through just before illness came on.

Previous illnesses: chicken-pox and whooping cough.

Family History: Nothing to note.

A thin girl, with a healthy complexion, no puffiness about the face, no oedema elsewhere, not anaemic.

Physical examination: nothing abnormal.

Abdomen nil. Urine sp gr 1010 Acid, contains pus. Some frequency and incontinence of urine.

Dec. 9th. Incontinence ceased, micturition not frequent. Appetite good, no complaint. Given Urotropin grs iij and Mist. Ammon. acet. zij t.i.d.

Dec. 12th. Better, very little pus in urine, no incontinence. Given R/ Urotropin grs iij
Tr. Hyoscyamus m x.
Sp. Chlorof. m $\frac{1}{2}$
Inf. Buchu ad \mathfrak{z} iij t.d.s.

Dec. 15th. Temperature up to 100.6 last night sick once, urine offensive and contains pus some dribbling from bladder, appetite good, no pain.

Dec. 18th. Dry cupped over both loins yesterday.

Dec. 19th. Much brighter and better, still pus in urine.

Dec. 22nd. No pus in yesterday's urine.

Dec. 23rd. Pus in urine again, also some incontinence. Urotropin increased to grs iv. t.i.d.

Dec 28th. Urine varies, pus one day, not next. Incontinence ceased. Patient seems very well.

Jan. 3rd. Discharged very well, no pus in urine last five days.

Nov. 1906. NAME Ida James.

DATE	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
TIME																					
C41° F 106																					
105																					
40° 104																					
103																					
39° 102																					
101																					
38° 100																					
99																					
98																					
37° 97																					
96																					
36...97																					
Pulse ^M _E	88	92	72	72	72	112	96	96	110	100	120	88	112	112	112	88	112	120	96	88	88
Resp. ^M _E	22	18	24	26	24	26	26	26	26	24	26	28	28	24	24	22	26	24	28	24	24
Motions	1	2	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1
Urine, ozs	26	47	35	31	36	22	25	23	29	24	26	26	31	38	33	36	33	33	34	32	31
Sp. Gr.							1020				1020								1015		
Reaction					ac		ac				ac								ac		
Chlorides																					
Albumen					+		+			+									+		
Devoritis					+		+			+									+		

GARDNER BROTHERS, LANSING, MICH.

Pulse

Nov. NAME _____

DATE	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13
TIME																					
C41° F 106																					
105																					
40° 104																					
103																					
39° 102																					
101																					
38° 100																					
99																					
98																					
37° 97																					
96																					
Pulse ^M _E	88	112	108	96	88	80	64	88	112	64	64	80	100	88	80	88	96	78	96	112	80
Resp. ^M _E	101	76	80	96	84	84	100	84	72	72	84	84	96	96	108	96	100	96	105		
Motions	0	1	0	1	2	0	1	1	1	0	2	1	2	0	2	1	0	2	0	2	1
Urine, ozs	37	40	35	26	35	34	31	30	35	33	40	31	33	39	39	38	42	35	33	32	31
Sp. Gr.									1020				1015								
Reaction									1015				1015								
Chlorides																					
Albumen									+				+								
Day of Dis.									+				+								

GARDNER BROTHERS, LANSING, MICH.

Pulse

Dec. 1906. NAME _____

DATE	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28						
TIME																					
C41° F 106																					
105																					
40° 104																					
103																					
39° 102																					
101																					
38° 100																					
99																					
98																					
37° 97																					
96																					
Pulse ^M _E	80	88	92	88	112	114	96	92	96	96	112	108	116	120	72						
Resp. ^M _E	100	96	100	108	120	96	96	100	96	120	120	120	132	84							
Motions	1	0	1	1	1	1	0	2	1	1	0	1	0								
Urine, ozs	32	32	33	26	28	24	31	37	31	27	25	24	23								
Sp. Gr.																					
Reaction																					
Chlorides																					
Albumen																					
Day of Dis.																					

GARDNER BROTHERS, LANSING, MICH.

IDA JAMES aet 11. 108 Seymour Buildings, Seymour Place.

Admitted November 2nd, 1906. Discharged December 28th

Had Diphtheria when 2 years old and after this was deaf and underwent an operation for this. Is still slightly deaf.

Also had measles and whooping cough. Continued in fair health till 2 weeks ago, when one night had to get up frequently to pass urine. Passed very little at a time. The urine was clear. Has suffered from headache and giddiness.

The incontinence has never been so severe that she wet her bed, but cannot hold her water for more than an hour day or night.

Family History: Four other children and father and mother all healthy. No miscarriages. The patient is a spare child not looking specially ill. No anaemia. Skin brown. Temperature so far has been irregular.

The tongue is moist and slightly coated. Nil cardiac and respiratory.

Abdomen soft, not tender.

Liver just felt at costal margin, spleen enlarged $1\frac{1}{2}$ in below costal margin.

The right kidney can be palpated but is not very freely moveable and is not tender to pressure.

Urine: sp. gr. 1008. Acid. Alb + Pus. Epithelial cells. No casts. Given Milk diet Barley water ad. lib.

November 5th, Nothing to be made out on physical examination of abdomen, no enlargement or tenderness of either kidney.

Given: Soda Sal.
Soda Benzoate aa grs x.
Aq. Chlorof ad $\frac{3}{4}$ ss.

November 10th. Pus diminishing.

November 18th Organism described as bacillus of diphtheroid type non-motile gram staining

November 19th. Pus fluctuating slightly in amount, but no definite diminution in last 10 days.
No active symptoms complained of.

Given: Urotropin grs v.
Salol grs v.
Mucilage q.s.
Tr . Lavendulae co. mxx
Aq. ad $\frac{3}{4}$ ss t.i.d.

November 26th. Quantity of pus less. Albumen still trace. No casts.

December 28th. Sent to Convalescent Home, quite well in herself but still persistence of pus and a trace of albumen.

Day of Disease	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	PM	AM	PM	AM	PM	AM	PM
107																						
106																						
105																						
104																						
103																						
102																						
101																						
100																						
99																						
98																						
97																						
Pulse	110	108	108	108	108	108	112	106	106	108	108	110	108	106	108							
Resp	26	25	25	25	25	25	26	24	24	24	24	24	24	24	24							
Bowels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Urine	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+							

IVY STILLWELL aet 6 yrs. 12 York Road, West Hendon.

Admitted 1st March 1909, Discharged 15th March

Complaint: pain in left side, passing blood in the water which she can't hold.

A healthy child till present illness. Three weeks ago began to have incontinence of urine and the mother noticed that she passed clots of blood with it. At the same time began to complain of very severe pain in the left side of the abdomen coming on at irregular intervals, and with this she has complained of feeling sick though she hasn't vomited.

Water is constantly dribbling away.

Bowels constipated.

Family History: Unimportant.

Does not look very ill, but skin is rather yellow.

Abdomen shows no rigidity though deep palpation in left hypochondriac region and above pubes cause distinct discomfort.

Nil in heart and lungs.

Urine acid, slight deposit of pus, no blood, a trace of albumen and some bladder cells.

2nd March. Has not complained of pain but is incontinent, given Asparin grs v. t.i.d.

3rd March. No incontinence. Free perspiration

at night. Very little pyuria, no pain. Sleeps a lot.

4th March. No incontinence or pain, urine only a trace of pus.

5th March. Temperature raised, dullness at left apex but no change in breath sounds.

7th March. Temperature still irregular, lung 1.5.2 2nd sound in mitral area much accentuated.

Child is bright and happy.

Urine still shows a trace of pus.

10th March. No pain or discomfort, urine free from pus. Lung has cleared up.

15th March. Discharged in excellent health, no pus in urine.

NAME Frances Tisdall Disease

Age

Result

Day of Disease	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PM	AM	PM	AM	PM	
107																						107
106																						106
105																						105
104																						104
103																						103
102																						102
101																						101
100																						100
99																						99
98																						98
97																						97
Pulse	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106						
Resp.	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24						
Bowels	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Urine																						

and measles and sleeping sickness.

Family History: Unimportant.

A healthy looking child was born. She is fretful and homesick. Tongue pale and fleshy, not furred. In the lower part of abdomen there is pain and tenderness, otherwise normal.

Systolic murmurs in heart, otherwise nothing to note.

Given Urotropin grs x. bid.

9th February. Has complained all night of abdominal pain, localised in pubic region, and there is a definite swelling felt here extending 2 inches above the pubis which is tender on palpation.

Urine is acid, with a trace of albumen and a trace of pus.

FLORENCE TINDALL aet 8 years. 16 Burne Street.

Admitted 8th February, discharged 24th February 1909.

Complaint: pains in stomach.

History: quite well until 10 days ago, when she began to complain of pain on passing water and desired to pass it very frequently. This has continued ever since. Said to have passed more urine since trouble began than formerly.

Previous Health: She has not been strong for the past year, being addicted to headaches. Has not vomited has had measles and whooping cough.

Family History: unimportant.

A healthy looking child but thin. She is fretful and homesick. Tongue pale and flabby, not furred. In the lower part of abdomen there is pain and tenderness, otherwise normal.

Systolic murmurs in heart, otherwise nothing to note.

Given Urotropin grs x. t.i.d.

9th February. Has complained all night of abdominal pain, localised in pubic region, and there is a definite swelling felt here extending 2 inches above the pubis which is tender on palpation.

Urine is acid, with a trace of albumen and a trace of pus.

15th. Developed copious urticarial eruption
all over. Given Mist. ol Ricini & Salol. The symptoms
are greatly relieved and the urine contains no pus
or albumen.

19th. Continues well, urine quite clear.

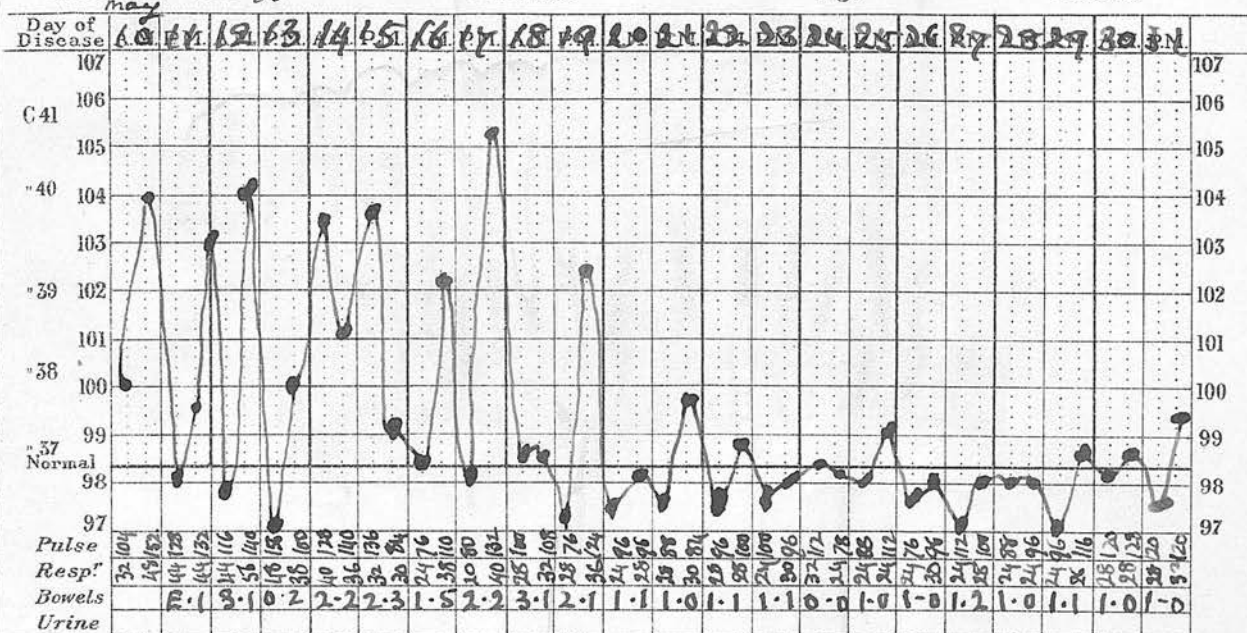
24th. Discharged, quite cured.

NAME *Wm Braggini*
may

Disease

Age

Result

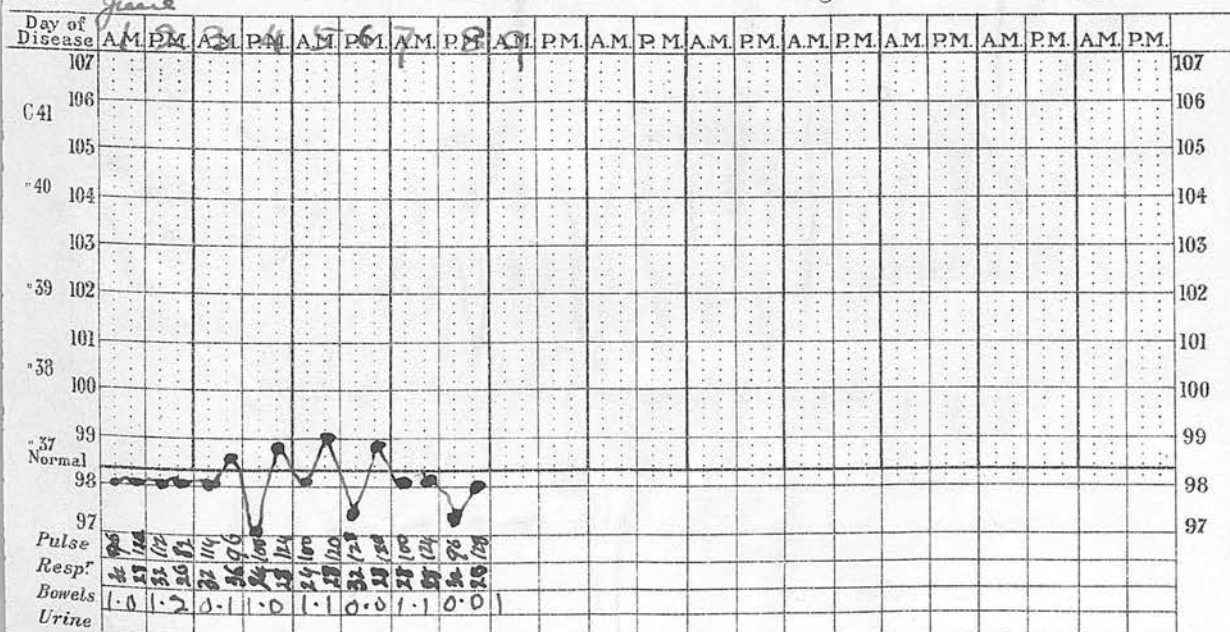


NAME *James*

Disease

Age

Result



WILLIAM BRAGGINS. aet 2 years. 14 Lincoln Mews.

Admitted 10th May 1909. Discharged June 9th.

Complaint: Glands in neck swollen, body swollen urine green and offensive, motions offensive and loose.

A week ago noticed enlargement of glands of the neck and the body began to be swollen, he was passing much less urine than usual, and three days ago this got an offensive smell. About the same time the bowels became loose and offensive.

Previous health. Enteritis when 1 year old.

Family History: unimportant.

On admission face swollen and puffy about the eyes. No oedema of the body to be made out however.

Nil on physical examination of chest or abdomen.

Left tonsil inflamed with a large gland on that side.

Urine acid albumen trace, blood trace and good deal of pus, uric acid crystals.

Given Glycerine pot. chlor. for throat and Mag. Salph.

13th May. Tonsils both inflamed with a good deal of swelling, urine I.S.Q.

17th May. Temperature still swings considerably a great deal of pus in the urine. R. Urotropin grs v. t.i.d.

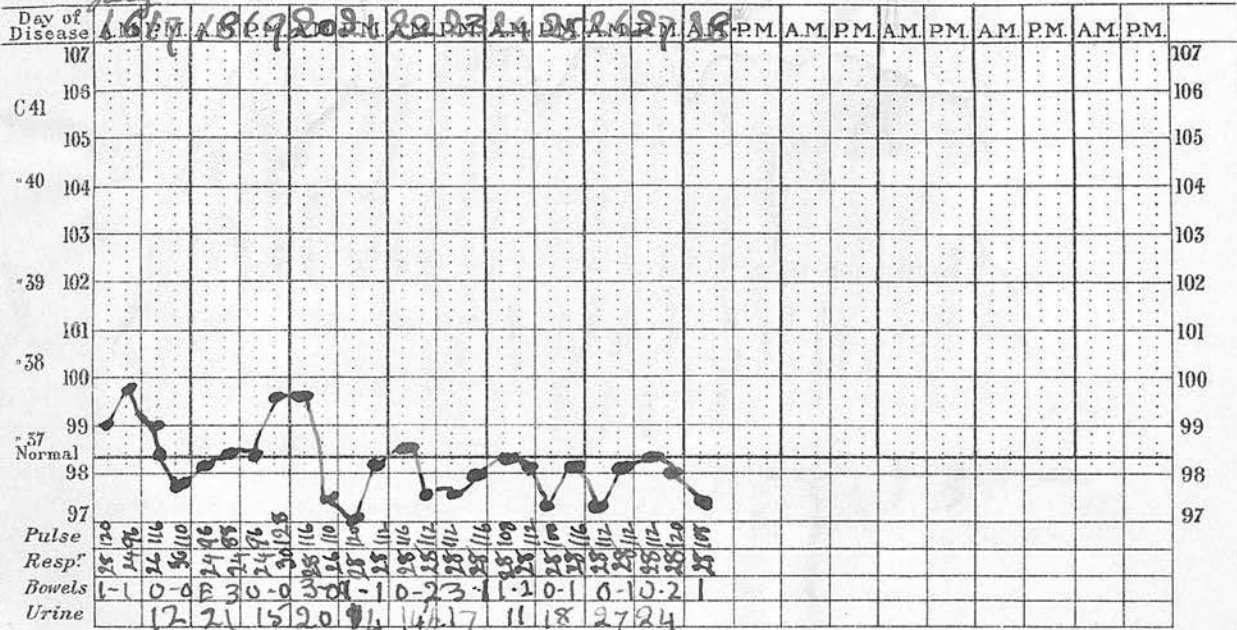
19th May. Urine acid, no blood or albumen pus +
No B. Coli can be found in the urine. Pot. Cit. grs
xv. t.i.d.

27th May. Urine is quite free from pus now,
and there has been no rise of temperature for a week,
the child is very much better. Pot. Cit. reduced to
half dose.

30th May. Improving rapidly looks quite bright
and well.

9th June. Discharged very well, with no abnor-
malities in urine, though this never seems to have
become alkaline.

NAME Muriel Savage Disease _____ Age _____ Result _____



Patient's temperature very low, and she had very
 little food and was troubled with nausea and
 vomiting. Appetite and bowels were otherwise well.
 All found in heart, lungs and abdomen.
 Urine. Acid, no albumen, but present, but not
 in large amount.
 Long coliform bacilli in stool.
 July 6 8 AM. Last night's stool was passed in
 urine. Catheter specimen that morning as first clear
 then some bright red blood with some clots.
 Nothing found on physical examination.
 Sleeps well and takes well.
 No complaint of pain or discomfort. Bowels
 regular, a few worms present.

MURIEL SAVAGE aet 3. 77 Berry Street, Church Road,
Willesden.

Admitted July 16th, Discharged July 28th.

Measles 7 months ago.

Three weeks ago the urine became thick, sometimes red and sometimes small clots of blood were passed.

The urine would often be red in the morning and would become clearer during the day, when there was a gelatinous deposit sometimes white, sometimes red.

Pain only during micturition at lower part of the abdomen.

Passes water very frequently, and wets bed every night is troubled with thread worms.

Appetite and bowels good and otherwise well.

Nil found in heart, lungs or abdomen.

Urine. Acid, no albumen, pus present, but not in large amount.

Long coliform bacilli present.

July 28th. Last night some blood was passed in urine, Catheter specimen this morning at first clear then some bright red blood with one clot.

Nothing found on physical examination.

Sleeps well and takes well.

No complaint of pain during micturition. Bowels regular, a few worms present.

July 24th. Passed 3 blood stained stools, no

19th. Urine 12 midnight to 8 a.m.

bladder symptoms. Lemon colour turbid acid.
no blood. Faint trace of albumen

July 25th. Mucous and pus contains blood.

Urine alkaline w/ No blood. in small quantities, no

Pain Microscopically pus and several ? casts.

Up all day, no complaints of any sort, no worms
in saline enema given to-day. No incontinence. Nil
on examination.

Urine 8 a. m. - 4 p.m. Acid pale, clear sp. gr.
1014. No albumen, mucous and a little pus, no blood.

Urine 4 p.m. to midnight. Acid, not markedly so.
No albumen, pale and turbid. Pus and bacilli.

July 20th. Urine 12 midnight to 8 a.m.

Acid, very pale, straw colour, clear except for
a few flakes deposit of pus and B. coli. No blood.

No pain or discomfort of any sort.

No vaginal discharge.

Given Pot. Cit. and Pot. Acet. aa grs x. 6
hourly.

July 21st. No incontinence passes urine fre-
quently, urine still acid and pus.

July 22nd. Frequency much less. No constipation
but motion with bright red streaks of blood passed
without pain or any symptom. Runs about actively all
day, taking well. Urine alkaline and much less pus.

July 23rd, 1 blood-stained stools passed.

July 24th. Passed 3 blood stained stools, no

bladder symptoms. Urine alkaline, pus diminishing,
no blood.

July 25th. Morning stool contains blood.
Urine alkaline with still pus in small quantities, no
pain or frequency, alkalies stopped, given Imperial
drink 1 pint daily.

July 26th. Urine acid, clear, still trace of
pus.

July 28th. No further symptoms, child very well,
no blood by bowel.

Urine still a little pus, otherwise normal.

LIX

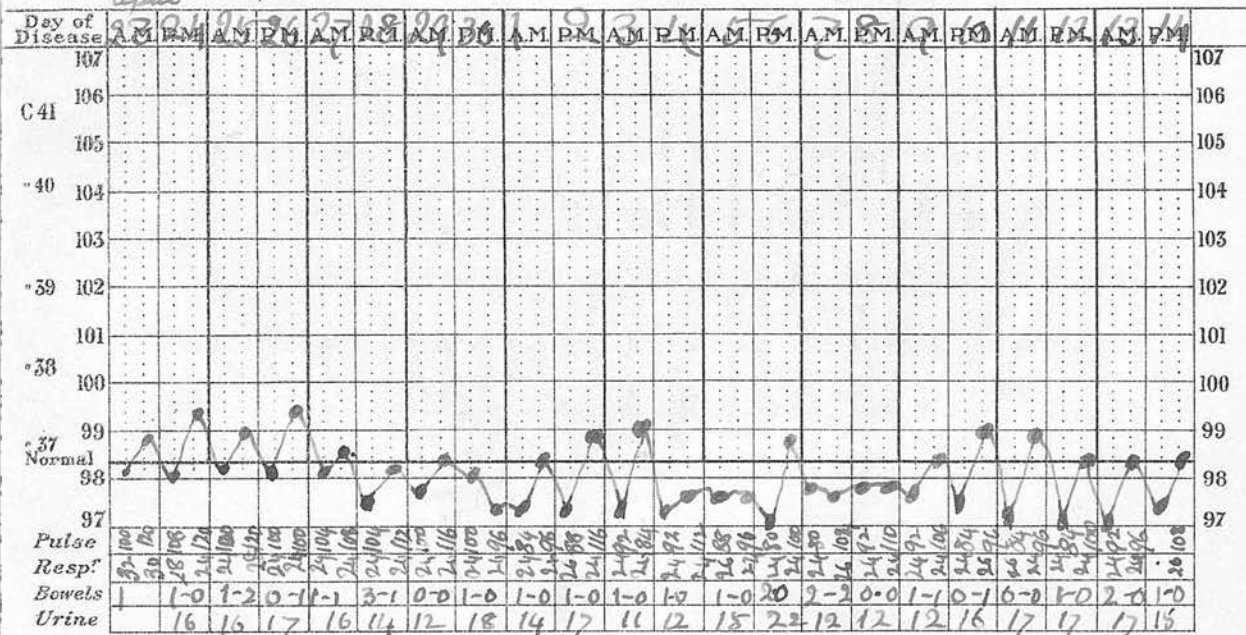
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NAME *Alice Knowles*

Disease

Age

Result



Not seen particularly ill.

Nothing to be done as regards physical examination.

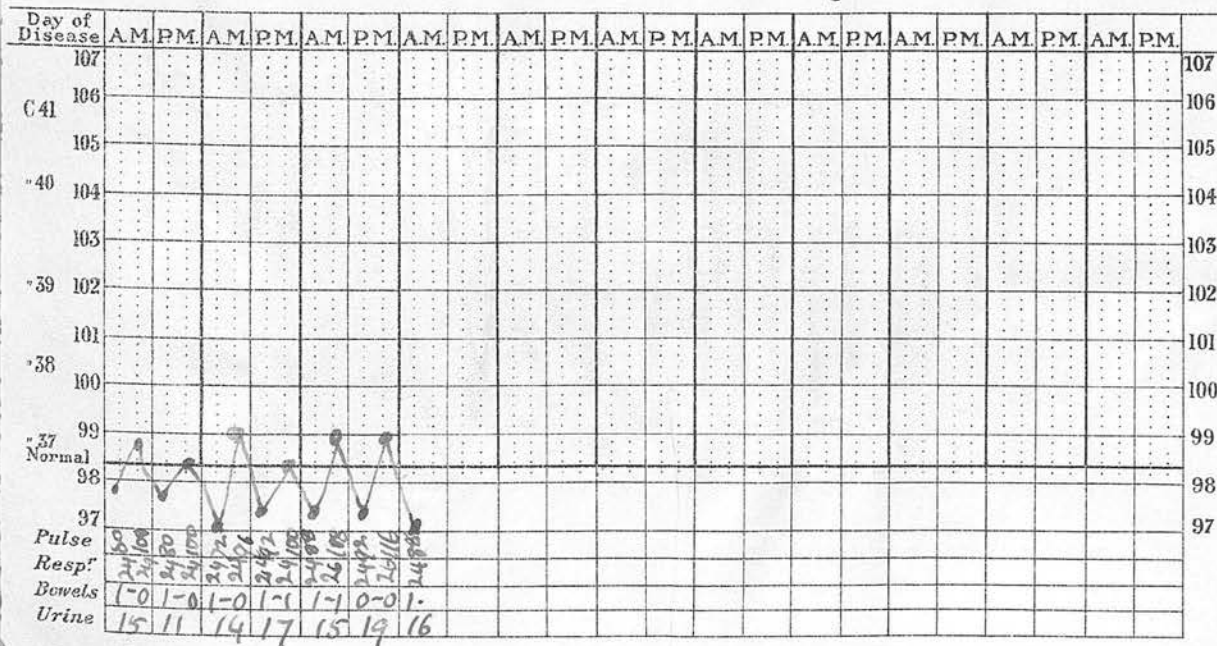
Sheet No. 12.
Walker's Medical
Loose-Leaf Book.

NAME

Disease

Age

Result



ALICE KNOWLER aet 5. 260 Lancaster Road, Notting Hill.

Admitted 23rd April 1910, Discharged 21st May 1910

Complains of nothing, but has been losing appetite lately. Passes her water very frequently, and only a small quantity at a time. No pain. Bowels open, no vomiting. Is said to have had shivering attacks.

Previous health good.

Family History good.

A pale child, fairly well nourished, and does not seem particularly ill.

Nothing to be found on physical examination.

Urine: acid, slightly turbid. Albumen a trace
pus cells, no organisms seen.

24th. Urine I.S.Q.

25th. Vaginal discharge to-day. Urine acid

1026. No albumen. Pus present.

27th. B. coli found in urine. Given:

Soda Sal
Soda Benzoate
Soda Bicarb. aa grs v.
Syr m x
Aq ad 3℥ 4 hourly.

30th. In non-catheter specimen copious deposit of pus and diplococci. Child is meanwhile quite well showing no symptoms.

5th May. Child well, urine acid, pus and bacilli. Mist Soda Sal etc., stopped. Given Pot. Cit. Pot. Acet aa grs x. t.i.d.

10th May. Urine neutral. No albumen, a few pus cells.

13th. Urine alkaline, a few pus cells, still numerous bacilli, child very well.

17th. Urine acid, very few pus cells, no B. coli, medicine given 4 hourly.

20th. No pus or organisms, child very well, discharged.

EDITH BRADLEY aet 6 6/12. * headaches. Nothing

84, Albey Street, St John's Wood. no pain or head-

Admitted 24th October 1910, discharged 29th
December, 1912. contains more pus again and is turbid.

Previous Illnesses: Measles.

Family History: nothing to note. again, but in-

Has been off her food for 3 weeks. Drowsy,
has complained of pain in head and stomach. She has
been screaming with pain before she passed urine.
Has got relief from pain after passing it.

No haematuria, but frequent micturition. Has
had some nocturnal incontinence. A pale delicate
child, tongue furred. Nothing on physical examination.

Urine acid, no albumen, microscopically pus and
coliform bacilli.

Given Urotropin grs v. 4 hourly.

26th October. No incontinence, frequency or
pain, on micturition, takes well, bowels normal.

28th. Urine acid, pus and bacilli.

29th. Has wet bed last 2 nights. No complaints
takes well, no vaginal discharge. Much less pus and
bacilli.

31st. Still nocturnal incontinence, otherwise
well, still some organisms in urine which is now
quite clear.

Nov. 1st. Complains of pain in left thigh, is somewhat drowsy, and has a headache. Nothing found on physical examination. 6.30 no pain or headache now. Stop Urotropin.

Nov. 3rd. Taking well, but still incontinent at night. Urine contains more pus again and is turbid. Resume Urotropin grs v. 4 hourly.

Nov. 5th. Urine has become clear again, but incontinence worse.

Nov. 12th. Urine still contains a little pus, child fairly well.

Urotropin stopped, given Sod. Cit. grs x
Tinct. ~~Myoscyam~~ m iiiij
Mist. Gent. alk ad 3 ij
t.i.d.

Nov. 14th. Urine acid sp gr 1023 pus +

Nov. 16th. Temperature up to-day, no sickness or other symptoms, nothing in chest, slight tenderness in trying to palpate Right kidney. Urine still acid.

Nov. 19th. Urine still acid, very little pus.

Nov. 21st. Temperature down, urine alkaline, still a lot of bacilli.

Nov. 28th. Frequency of micturition and incontinence better but not cured, still bacilli in urine.

Dec. 12th. Urine clear, very little pus, only occasional incontinence.

Dec. 27th. Urine free from pus, discharged well.

NAME <i>Ethel Gado</i>		Disease		Age		Result															
Day of Disease	Temp	Pulse	Resp	Bowels	Urine	Temp	Pulse	Resp	Bowels	Urine	Temp	Pulse	Resp	Bowels	Urine	Temp	Pulse	Resp	Bowels	Urine	
107																					107
106																					106
105																					105
104																					104
103																					103
102																					102
101																					101
100																					100
99																					99
98																					98
97																					97
Pulse	100/12	96/12	92/12	88/12	84/12																
Resp	20	18	16	14	12																
Bowels	1	0	0	1	1																
Urine																					

well, has vomited occasionally lately.

Nothing to be made out on physical examination.

Urine very acid, no albumen, some pus, numerous coliform bacilli.

Given: Pot. Cit. aa grs x
Pot. Acet.
Syr. Aurox M v. 5 hourly.
Ad chlorof aa 3

17th. Child very sleepless and cries if not nursed. Urine I.S.G.

18th. Slept well after grs x. of Bromide, no frequency, or pain now.

19th. As temperature satisfactory and child is mending, sent home. Urine still acid.

Later reported to have quite recovered and in good health.

ESTHER ANNIE OAKS, 7 Shrewsbury Road, Paddington.

Admitted March 15th, discharged March 18th.

Previous illnesses: nil.

Family History: father and mother well, children well, 2 dead of croup.

Present illness: During last three weeks mother noticed that the child appeared unwilling to pass water, and cried while passing it. Nothing abnormal noticed about water, no vulvo-vaginitis. Motions offensive, rather constipated.

The child has appeared to be feverish, not taking well, has vomited occasionally lately.

Nothing to be made out on physical examination.

Urine very acid, no albumen, some pus, numerous coliform bacilli.

Given: Pot. Cit. aa grs x
Pot. Acet.
Syr. Aurant M v. 6 hourly.
Aq chlorof ad j

17th. Child very sleepless and cries if not nursed. Urine I.S.Q.

18th. Slept well after grs x. of Bromide, no frequency, or pain now.

19th. As temperature satisfactory and child is mending, sent home. Urine still acid.

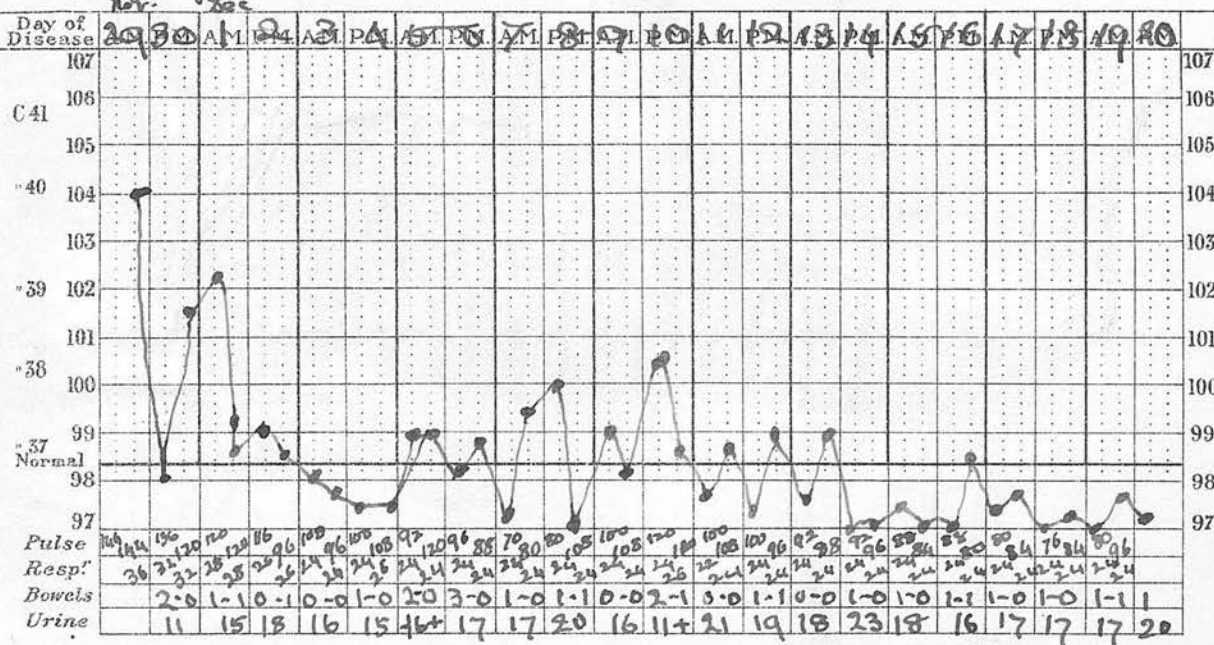
Later reported to have quite recovered and in good health.

NAME Gladys Martin

Disease

Age

Result



constant, but considerably worse on passing water. Last Thursday she began to lose her appetite, vomited on Monday and that evening was feverish and began to complain of headache. The bowels have been slightly irregular during the last fortnight. Has been suffering from thread worms lately.

Previous health: Unimpaired and good.

Family History: Unimpaired.

On admission T. 104 F. 100 P. 24.

Abdomen is quite soft. No tenderness on pressure over kidney regions especially right.

No supra-pubic tenderness.

Heart and lungs normal.

Urine acid sp. gr. 1020 clear.

Pus + albumen +

Microscopically pus and gram negative bacilli

GLADYS MARTIN aet 3 8/12

67 Ravenshore Street, West Hampstead.

Admitted 29th November 1911. Discharged 20th December, 1911.

Complaint: Pain in lower part of abdomen.
Pain on passing water. Fever, headache and bad appetite.

History: cold a fortnight ago and three days later began to have pain on passing water, and was excoriated about the vulva. The pain was more or less constant, but considerably worse on passing water. Last Thursday she began to lose her appetite, vomited on Monday and that evening was feverish and began to complain of headache. The bowels have been slightly irregular during the last fortnight. Has been suffering from thread worms lately.

Previous health: Chicken-pox aet 3.

Family History: unimportant.

On admission T. 104 P. 144 R. 40.

Abdomen is quite soft, slight tenderness on pressure over kidney regions especially right.

No supra-pubic tenderness.

Heart and lungs normal.

Urine acid sp. gr. 1010 cloudy.

Pus + albumen +

Microscopically pus and gram negative bacilli

(B. coli) Given Ol. Ric $\frac{z}{3}$ iij stat.

Given Sod. Bicarb.

Pot. Cit. aa grs x. 4 hourly.

Dec. 3rd. Urine shows less pus and no albumen.
Still faintly acid.

Dec. 4th. Brighter to-day, urine alk. less pus
Mixture given t.i.d.

Dec. 9th. Better, urine alkaline, pus no
albumen, mixture 4 times a day.

Dec. 11th. Still pus; given Urotropin grs v. 4
hourly.

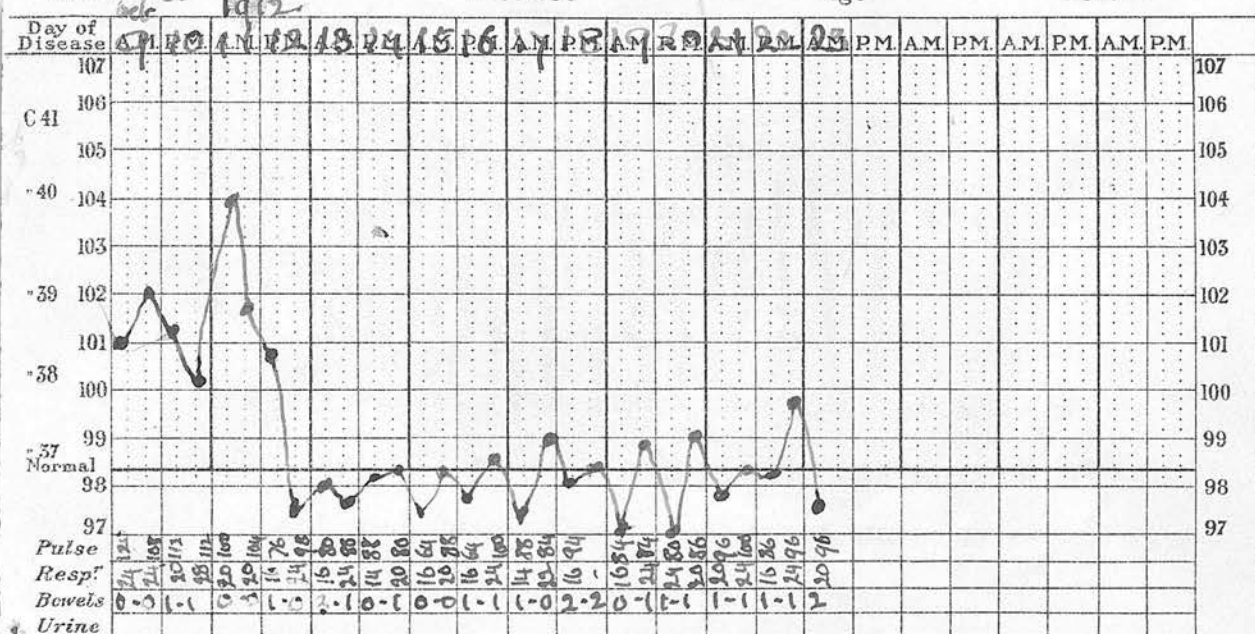
Dec. 20th. Discharged in very good health but
there is still some pus in the urine.

NAME *Lezzie Guehol*

Disease

Age

Result



LIZZIE NICHOLS aet 5.

31 Treverton Street, West Kensington.

Admitted 9th October, discharged 23rd October.

Complaint: pain in stomach, pain in passing
warer.

History: a fortnight ago she cried when she
passed her water. Was given some Pot. Bicarb. which
gave her relief, but has since complained of abdominal
pain night and day. The pain is not made worse by food
but she seems thirsty and cries for water.

Her bowels have been confined, and has had
severe headaches, and has been very feverish. For a
fortnight has been getting nothing but milk. No vomit-
ing. Her previous health has been good. Whooping
cough at 4 years old.

On admission, pale, thin child, of a fairly placid
disposition.

Slight tenderness over the right kidney, but this
is by no means well marked. Nothing in heart or lungs.

Urine acid, albumen acetone and pus present, Bacilli
which when cultured and subjected to the sugar tests
prove to be Bacillus Lactis aerogenes.

Has incontinence of urine.

Given Pot. Cit. and Pot. Acetate aa grs x. 4 hourly.

11th. Has complained of no pain at all.

Incontinent.

12th. Urine is alkaline, no acetone, trace of albumen, pus present.

14th. Continues fairly well, temperature has settled down. No incontinence or pain on micturition now. Urine alkaline, trace of albumen and pus.

16th. Much better, temperature quite settled, urine alkaline, no albumen and trace of pus.

18th. No pus in urine, cultures are sterile, child is quite better and there are no symptoms at all. Alkalies stopped, and given emulsion of Ol. Morrhuæ.

23rd. Discharged, completely cured.

ETHEL CLEMENTS aet 1 5/12.

25, Braehousfield Road, Willesden Green.

Admitted January 22nd, 1912; discharged 5th February 1912.

Complaint: Pain on micturition. Cough and loss of appetite.

History: Was perfectly well until a fortnight ago, then she could not pass her water properly, only passed a little drop at a time and wanted to go very frequently, and stained when she went. Has cried every time she passed water and for last few days the pain has been worse, though she has passed more water.

Has had a bad cough for a week.

The right ear has been discharging for one week.

Loss of appetite for 1 week.

Previous health: ill with unknown cause 5 weeks ago, otherwise good.

Family History: satisfactory.

A thin child, somewhat rickety.

Beyond slight bronchial catarrh nothing on physical examination.

Urine shows acid, trace of albumen, pus cells, Oxalate crystals and B. coli (pure culture obtained)

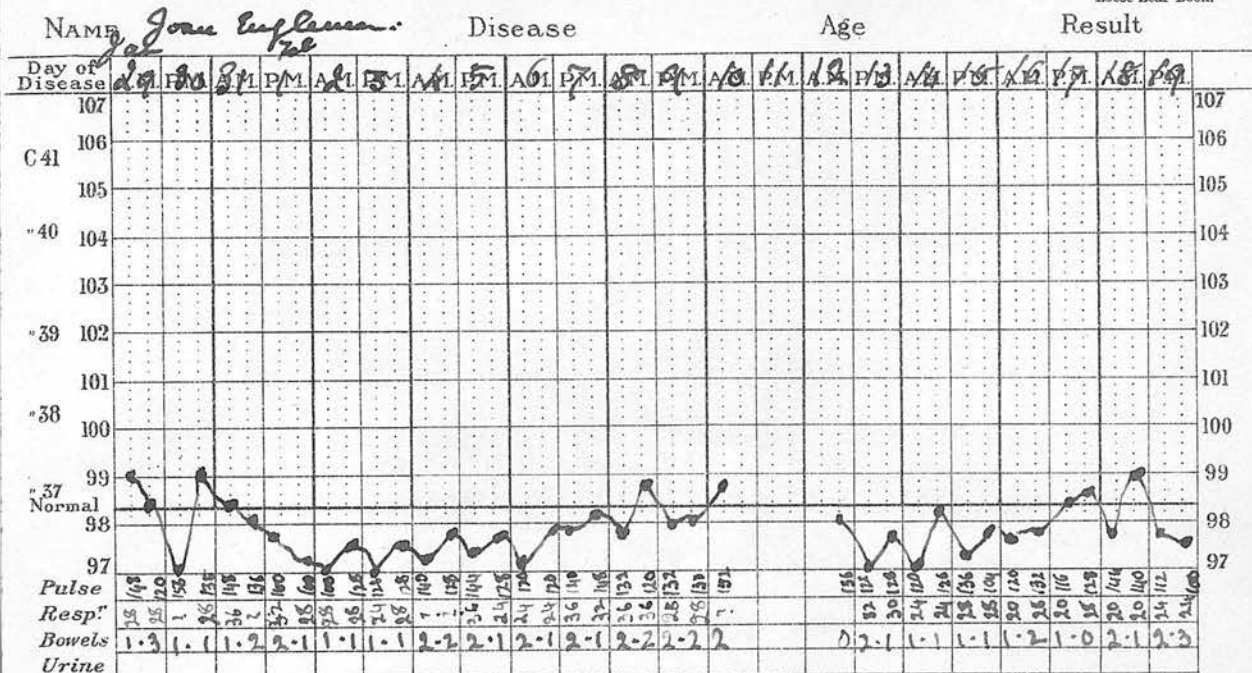
Given Sod. Bicarb.

Pot. Cit aa grs v. 4 hourly.

Jan. 24th. The urine was neutral and on 25th alkaline. No pain on passing water, and no screaming.

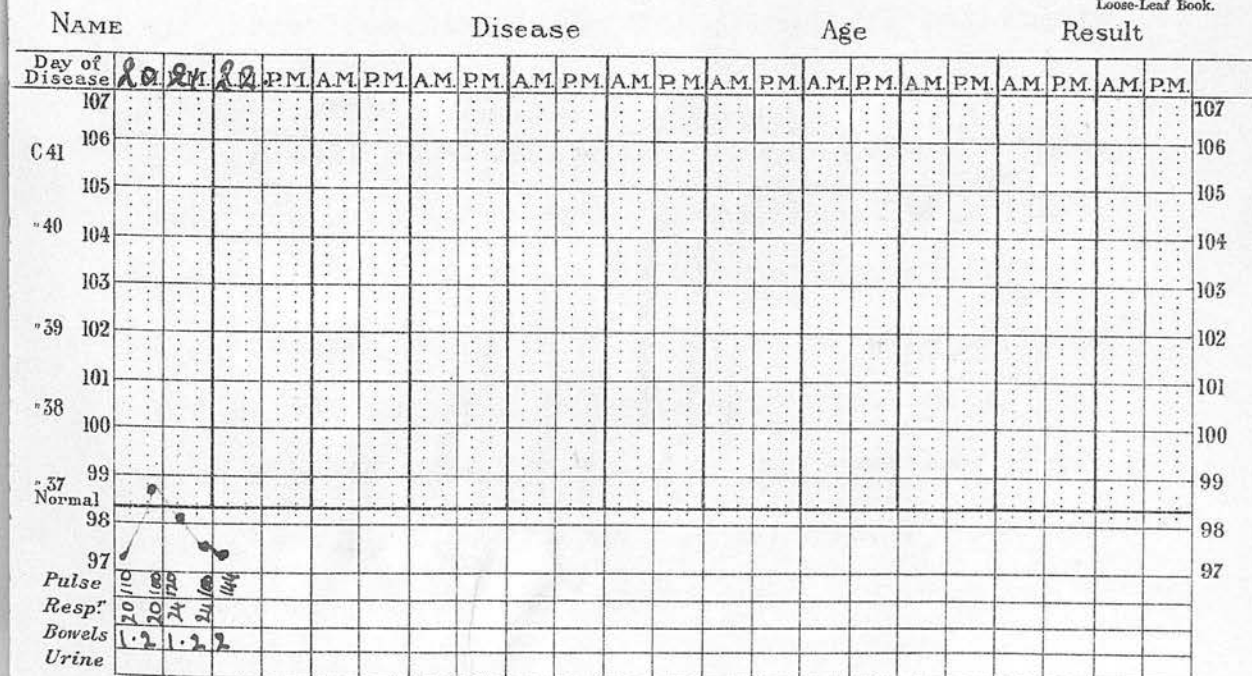
Jan. 29th. Urine neutral, trace of albumen, pus, and bacilli present.

Feb. 5th. Discharged quite well to all appearances, but still has some pus in urine.



bluen.

She has a tendency to depression and there is



very satisfactory

JOAN ENGLEMAN aet 7/12.

Admitted January 29th, discharged February 9th.

Complaint: feverishness and sickness of three weeks duration.

About three weeks ago the child became rather irritable and vomited occasionally. The mother noticed that the child was very feverish and during the last two weeks has been in a dazed condition, taking no notice of anything and has lately been very drowsy.

The extremities have become swollen and blue at times.

She has a tendency to diarrhoea and there is some pain when she micturates.

Previous health and family history nothing to note.

A well nourished child, rather pale and puffy under the eyes. The skin is healthy. The child is very irritable and there is slight head rigidity.

Nothing found on physical examination. Urine acid no albumen, pus cells and B. coli. Child was given Mist of Ricini~~x~~ only till February 4th then Pot. Cit. grs v. t.i.d. By the 5th had become much better and less irritable, but there were still pus and B. coli in the urine.

On the 9th was discharged, her condition being very satisfactory.

On the 12th was re-admitted having been very sick and feverish since leaving hospital; she has an irritating cough and is very fretful.

The child is rather thinner but the colour is good. She does not take well, motions are green and offensive.

Urine still contains pus and B. coli.

The child, however, improved rapidly in hospital, and by the time she was discharged again on the 22nd she was very well, and the urine contained only a trace of pus and only yielded one or two colonies of B. coli on the culture media.

NAME		Disease										Age				Result							
Day of Disease		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		
107																						107	
106																						106	
105																						105	
104																						104	
103																						103	
102																						102	
101																						101	
100																						100	
99																						99	
98																						98	
97																						97	
Pulse		96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96		
Resp.		24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24		
Bowels		0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1		
Urine		13+	24	16+	21	15+	18+	21															

For the last week the patient has complained of a scalding pain during micturition. She is now passing urine in small quantities very frequently. At times she is very feverish and she has not been out of bed for some months. Otherwise no complaint except for a cough which is getting better. Has had measles, chickenpox and whooping cough.

Family History: unimportant.

A healthy, well-nourished child, slightly cyanosed two areas of erythema, nodosum on thighs.

Nothing further to note on examination.

Urine acid, trace of albumen, pus and true B.

coll. Given R. Pot. cit. grs v.

Pot. Acet grs v. t.i.d.

20th Feb. Incontinence and frequency. No sickness T. 99

WINIFRED PAYNE aet 6. 117 Third Avenue, Queen's Park

Admitted 19th February, 1912.

Complaint: pain in passing water and getting thinner, duration 6 weeks.

History: for the last six weeks the child has been losing weight. She refuses to run about and is very drowsy.

She has no appetite, and has never vomited. She has been extremely irritable during this time. For the last week the patient has complained of a scalding pain during micturition. She is now passing urine in small quantities very frequently. At times she is very feverish and she has wet the bed for some months. Otherwise no complaint except for a cough which is getting better. Has had measles, chickenpox and whooping cough.

Family History: unimportant.

A healthy, well-nourished child, slightly cyanosed two areas of erythema, nodosum on thighs.

Nothing further to note on examination.

Urine acid, trace of albumen, pus and true B. coli. Given R. Pot. cit. grs v.
Pot. Acet. grs v. t.i.d.

20th Feb. Incontinence and frequency. No sickness T. 99

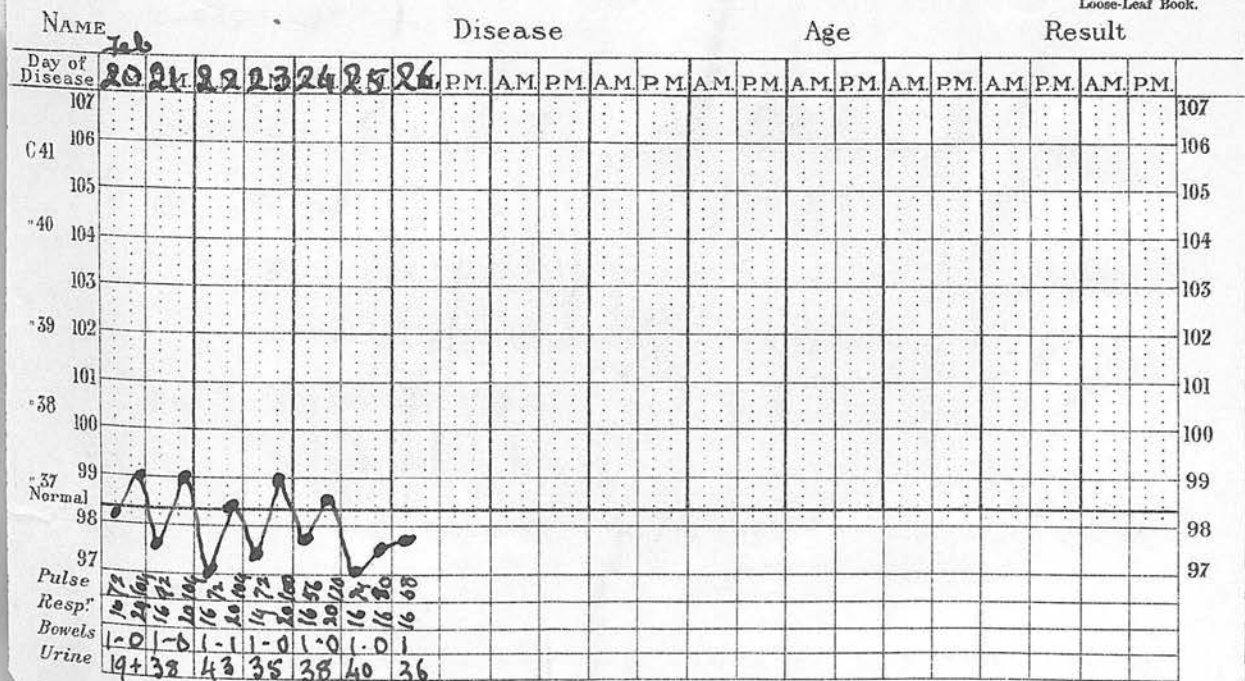
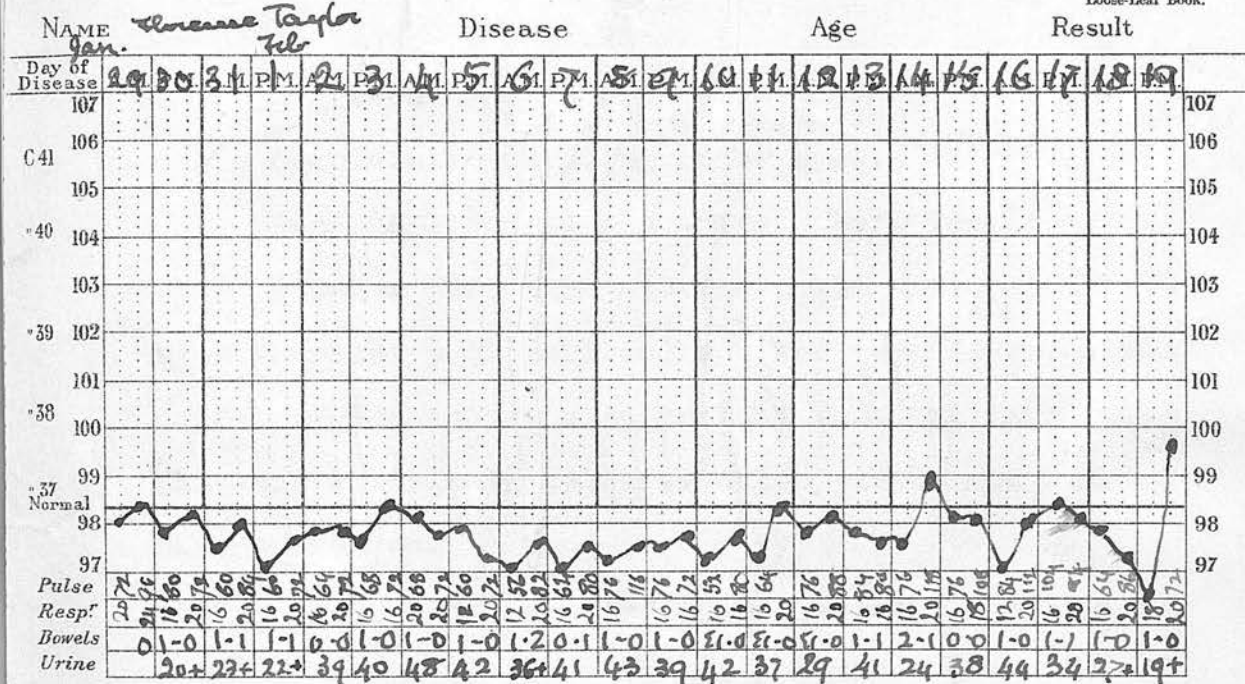
21st Feb. No more incontinence.

23rd Feb. Still pus and trace of albumen in urine. No more incontinence, erythema disappearing temperature normal.

24th Feb. Incontinence twice yesterday.

25th. Incontinence once.

26th. Very comfortable, no incontinence, urine alkaline. Appetite good.



FLORENCE TAYLOR aet 5½

Admitted 27th January.

Complaint: swelling under eyes.

Passing blood in the urine. Duration 14 days.

About a fortnight ago the child woke one morning with the eyes much swollen, and was very feverish and thirsty. The mother also noticed that the child was passing very highly coloured urine, which has lately been quite red.

During the last week there has been swelling of the legs and lower part of the abdomen.

Has never had any vomiting; for the last few days has had diarrhoea. Appetite poor, no convulsions slight frontal headache at commencement of illness. Sleeps very well.

P.H. Kidney trouble 2 years ago.

T.B. abdomen when 6/12 Has had measles and chicken-pox.

Nil important in Family History.

A well-developed child complexion good. Very puffy under the eyes.

Spleen enlarged.

Abdomen enlarged on percussion, there is dullness on flanks, a distinct thrill felt.

Urine acid, alb. and blood ++ pus none, but a copious growth of coliform bacillus, later identified

as Gaertner.

Jan. 31st. Eyes are very puffy this morning. Child is passing a fair quantity of urine. No oedema of hands or feet but a little over the left tibia. No sickness, bowels loose.

1st Feb. Still puffy under eyes, passed 22 oz of urine during the last 24 hours.

Given: Pot. Cit.
Pot. Acet aa grs x. t.i.d.

4th Feb. Much better, puffiness has entirely gone from eyes. Abdomen smaller, no thrill, no oedema in legs.

5th. Better, no oedema, abdomen smaller, urine still albumen and blood.

6th. Has lost 2 lbs since admission, no oedema.

10th. Doing very well, still copious growth of Gaertner's bacillus from urine.

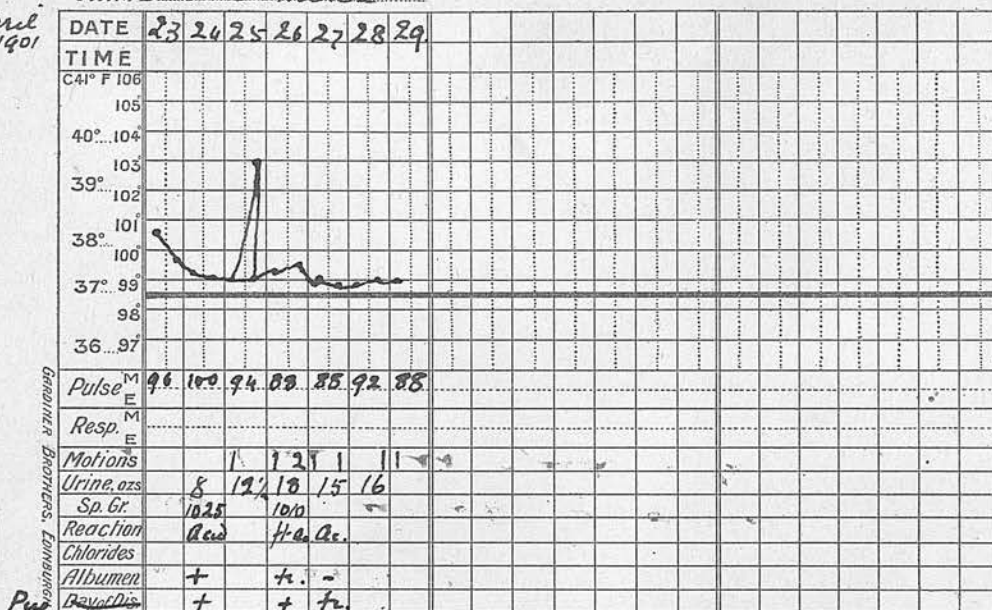
14th. Less blood in urine, child very comfortable.

22nd. Still blood and albumen given Adrenalin chloride grs vi nocte.

26th. Albumen and blood as before in the urine but child very well. At no time has there been pus in the urine.

XXXVIII

NAME Hellie Horton
 April 1901



never previously suffered from dysentery at all.

Bowels constipated.

A slim child, dark under eyes.

Cervical glands enlarged, tonsils slightly reddened.

Lungs and heart nil.

Abdomen nothing abnormal, no tenderness over bladder or kidney.

Urine sp gr 1025 acid, turbid, alb. tr. Pus + Clumps of mobile bacilli no casts.

Some frequency but no pain on micturition.

Given milk diet, Barley Water ad lib.

H. Ac. Boreo grs v.
 Sod. Benzoate grs v.
 Aq ad 3 ij t.i.d.

NELLIE NORTON aet 5. 13 Malvern Mews.

Admitted 23rd April 1901, Discharged 29th April.

Family History: 4 children in family. No phthisis or rheumatism. All family said to suffer from weak bladders.

Previous health: concussion of brain at 2½ years. Measles aet 3. No other illness.

History: about a week ago started to have incontinence of urine, no pain. Appetite bad. Frequency of micturition increased. No blood was passed No vaginitis. Very emotional easily upset. Has never previously suffered from enuresis at all.

Bowels constipated.

A slim child, dark under eyes.

Cervical glands enlarged, fauces slightly reddened.

Lungs and heart nil.

Abdomen nothing abnormal, no tenderness over bladder or kidney.

Urine sp gr 1025 acid, turbid, alb. tr. Pus + Clumps of mobile bacilli no casts.

Some frequency but no pain on micturition.

Given milk diet, Barley Water ad lib.

R Ac. Borac grs v.
Sod. Benzoate grs v.
Aq ad 3 ij t.d.s.

26th April. Temperature up to 103, normal by 9 p.m. No vulvitis, no pain or tenderness in kidneys, kidneys impalpable, still constipated.

29th. Removed from hospital more or less I.S.Q. pus rather less, child rather better.

had some abdominal pain, drawing up her legs and screaming. Before this case on had been very constipated.

She has been feverish from time and to better in intervals.

Ill when feverish, with dark rings round eyes, has lost no flesh. Has been convulsed at times and rolls her head. Has had no vulvo-vaginitis.

On examination nothing to be made out.

Urine acid, cloudy trace of albumen, pus cells microscopically in large quantities.

Is being fed on milk and barley water. Bowels now move well.

At present fairly well.

Urotropin grs x.
Pot. Acet.
Pot. Cit. aa grs x.
Glycerine ʒss
Aq ad ʒiij

March 6th. Went on with medicine for 10 days then ceased to attend till to-day. All symptoms have disappeared, and there is no pus in the urine, a few colonies of B. Coll however have been obtained culturally.

CHARLOTTE GRAY aet 9/12, 36 Lesmore Road.

Out-patient.

For 3 or 4 months has been very restless at night and screams when she wants to pass water. Has had some abdominal pain, drawing up her legs and screaming. Before this came on had been very constipated.

She has been feverish from time and is better in intervals.

Ill when feverish, with dark rings round eyes, has lost no flesh. Has been convulsed at times and rolls her head. Has had no vulvo-vaginitis.

On examination nothing to be made out.

Urine acid, cloudy trace of albumen, pus cells microscopically in large quantities.

Is being fed on milk and barley water. Bowels now move well.

At present fairly well.

Urotropin grs v.
Pot. Acet
Pot. Cit. aa grs v.
Glycerine ʒss
Aq ad ʒi

March 6th. Went on with medicine for 10 days then ceased to attend till to-day. All symptoms have disappeared, and there is no pus in the urine, a few colonies of B. Coli however have been obtained culturally.

MAY ROBINSON aet 7. 93 Fortingale Road, Harlesden.

Admitted February 23rd, 1904. Discharged March 8th.

A fortnight ago was suddenly seized with pain in the stomach, the next day she passed some blood in the urine before which she had passed urine containing white streaks tinged with blood. Has had some pain in stomach since, but always has pain in the vulva after passing urine.

Previous Health: measles 3 months ago. Scarlet Fever 12 months ago.

Family History: maternal grandfather died of phthisis, otherwise unimportant.

Looks ill, pale, dark rings under eyes, thin but not wasted.

Cardiac and respiratory systems normal.

Abdomen: kidney impalpable and not tender, liver and spleen normal. No tenderness over bladder. No vaginitis or vulvitis. No pain on micturition. Frequency 10 times in 24 hours.

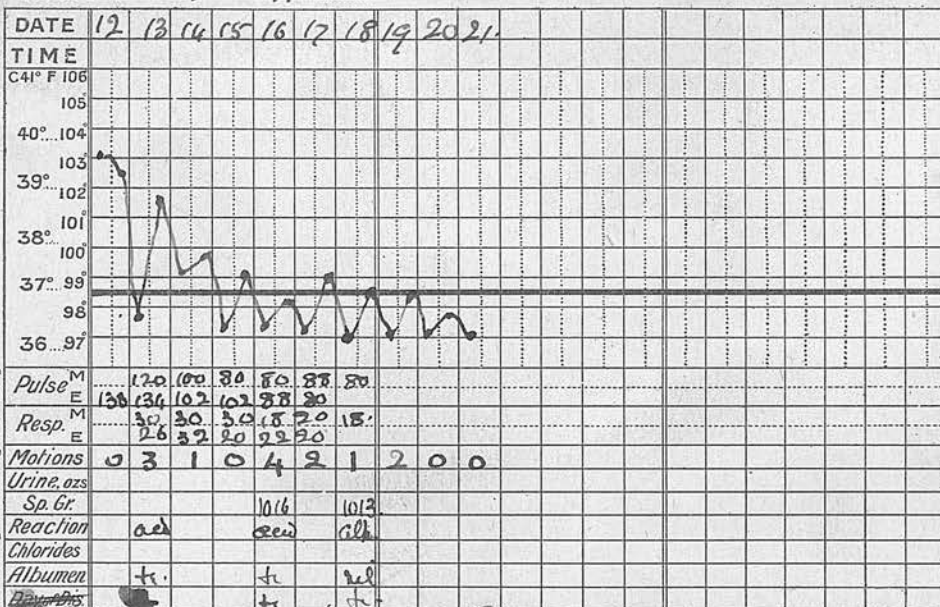
Urine: acid, albumen, pus. No casts. Trace of blood. Pus cells, bladder epithelium.

Given: soda Sal. grs x.
soda Bic. grs xx
aq ad 3℥ grs 4 hourly.

Feb. 29th. No symptoms of active trouble. Urine alkaline, considerable deposit, albumen + no blood still pus.

March 3rd. Varicella developed. Albumen
trace only present, pus less, child much improved.

LXXXI

NAME Beafree NestJan.
1904

GRANTER BROWERS, LINCOLN, NEB.

Pus

No physical signs whatever found, urine bloody albumen, pus cells present, after pus culture of *E. Coli communis*. Given milk diet, no fruit.

Jan. 21st. Discharged, temperature being quite restored to normal, child much better. Still some pus in urine.

BEATRICE WEST aet 2 7/12. 29 More Street, Edgware Road.

Admitted: January 12th 1904.

Discharged: January 21st, 1904.

Ill for one month. First thing noticed was a craving for milk and sweets, and passing quantities of urine. Has complained of occasional headache. Abdomen has been swollen and firm. Bowels regular.

Previous health: Measles, Chicken Pox 2 years ago.

Family History: unimportant.

No physical signs whatever found, urine cloudy albumen, pus cells present, gives pure culture of B. Coli communis. Given milk diet, no drugs.

Jan. 21st. Discharged, temperature being quite restored to normal, child much better, still some pus in urine.

XXXX 11

NAME _____

July 1897.

Aug. 1897.

DATE	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TIME																					
C41° F	106																				
105																					
40° 104																					
103																					
39° 102																					
101																					
38° 100																					
99																					
37° 98																					
97																					
36																					
Pulse	102	108	106	98	86	74	86	86	78	74											
Resp.																					
Motions	1	1	2	1		1	2	2	1	1	1	1									
Urine, ozs	6	16	36	20					16	10	12	11	14	20	15	25	22	15	23	13	15
Sp. Gr.		1012	1014			1004	1008	1008	1008	1015	1014	1014		1016	1015	1015	1014	1015	1020	1020	1020
Reaction		ac	ac	ac	N.	ac	ac	N.	N	N	ac			ac	ac	ac	ac	ac	ac	ac	ac
Chlorides		B	B	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Albumen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Diagnosis																					

pale anemic child. Abdomen soft, nontender, kidneys impalpable.

Urine acid, slightly milky, no crystals. Albumen, blood and pus, no casts. No pain on micturition.

Respiratory and circulatory systems normal, no edema.

Given Cal gra 1 recte. R. Pot Cit.
Pot Acet. aa gra 7.
As ordered ad 3 i. d. s.

July 31st. Passing more urine 36 oz. in 24 hours. Less albumen, pus and blood. Given Cl. Bic. 3 i recte.

August 3rd. Put up from milk to milk diet.

August 7th. Great frequency of micturition, sometimes inability to pass it. Bladder not distended.

Given Mist Pot. Cit (grs x. Pot. Cit.)
Mist. Soda Cal aa 3 i. (Grs v2 Sod Sol.)

IRENE COLE aet 5 6/12. Admitted July 27th, 1897,
discharged August 18th, 1897.

Family History: father mother three other children alive and well. No miscarriages.

History: Never has been strong. Measles and Influenza 18 months ago. Patient has been dull for 3 weeks, and passes water frequently. This is dark, containing blood. Appetite bad. Constipated. Restless at night. No cough or vomiting. No previous urinary trouble. No previous Scarlet. Patient is a pale anaemic child. Abdomen full, bowels constipated, kidneys impalpable.

Urine acid, slightly smoky, sp gr 1012 contains albumen, blood and pus, no casts. Uric acid crystals, no pain on micturition.

Respiratory and circulatory systems normal, no oedema.

Given. Cal grs j nocte. R. Pot Cit,
Pot Acet. aa grs v.
Aq chlorof ad 3 j t.d.s.

July 21st. Passing more urine 36 oz. in 24 hours less albumen, pus and blood. Given Ol. Ric, 3 j nocte

August 3rd. Put up from milk to milk diet.

August 7th. Great frequency of micturition, sometimes inability to pass it. Bladder not distended.

Given Mist Pot. Cit (grs x. Pot. Cit)
Mist. Soda Sal aa 3 j. (Grs v Sod Sol.)

August 8th. No abdominal pains since admission
abdomen still full.

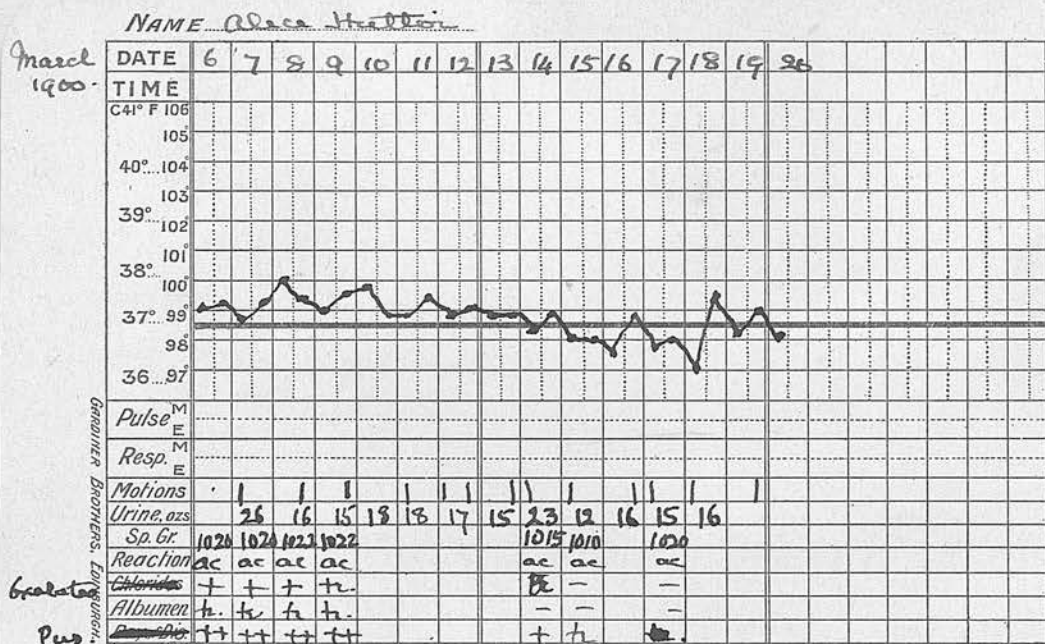
August 13th. Frequency of micturition stopped.
Urine trace of albumen, no pus or blood.

August 14th. Slightly more frequent micturition
but much better physically. Given Emuls. hypoph. \mathcal{D}
Ol. Morrh \mathfrak{z} j t.i.d.

August 18th. Discharged improved, pus disappeared
from urine.

LXXXIII

ALICE HUTTON Set 11. 1 Mill. 1000.



No worms

Patient is a well nourished child. No vaginitis. Nothing to be made out on physical examination. Urine clear, sp gr 1020 Alb. tr pus + oxalates +. Given cal grs 1 nocte.

R. Pot. lit.
Pot. 2000 mg grs 3.
Ag. 2000 mg 4 hourly. Milk diet.

March 31st. Fullness and dullness over right kidney region.

March 14th. Pus and oxalates, still in urine. Rather less pus. No symptoms complained of. Appetite good. Some dullness on right side posteriorly below costal margin as compared to local resonance of opposite side.

ALICE HUTTON aet 11. 3 Hall Place.

Admitted March 6th 1900, discharged March 20th 1900.

Family History: Elder of two, other child has a weak chest. No miscarriages.

Patient was breast fed, has had thrush.

Previous illnesses: measles, chicken-pox, whooping cough.

Present illness: A week ago noticed frequency of micturition with a certain amount of pain.

Noticed to be frequently shaking her legs, restless, pale, out of sorts.

Yesterday had haemorrhages from vagina and rectum.

No worms

Patient is a well nourished child. No vulvo-vaginitis. Nothing to be made out on physical examination. Urine clear. sp gr 1020 Alb. tr pus ++ oxalates + Given cal grs j nocte.

R. Pot Cit.

Pot. Acet aa grs x.

Aq. ad ~~3~~ 4 hourly. Milk diet.

March 8th. Fullness and dullness over right kidney region.

March 14th. Pus and oxalates, still in urine. Rather less pus. No symptoms complained of. Appetite good. Some dullness on right side posteriorly below costal margin as compared to bowel resonance of opposite side.

Given: Sod. Benzoate grs viii
Soda Sal. grs viij
Ext. Glycyrrhiz ʒij t.i.d.

16th. Pus and oxalates have disappeared after
a few doses of above mixture.

18th. Urine clear, no pus.

20th. Discharged cured.

She had had intercostal fever with great
tenderness first in right side then in left, the
more marked in the right.

The right kidney was enlarged and tender,
which were attended with pyuria. The case
treated with vaccine without any effect.

JEFFREYS QUARTERLY JOURNAL OF MEDICINE 1910 -11

III. A girl aet 6½ years admitted to hospital September 17th, 1910. Had complained of frequency and precipitancy of micturition since March. Had been feverish with shivering attacks off and on.

She had had intermittent fever with pain and tenderness first in right loin then in both, but always more marked in the right.

The right kidney was palpable during attacks, which were attended with constipation. She was treated with vaccines without very good effects.

and the child has been pale and languid ever since.

In July had diarrhoea and vomiting with fever and prostration and pain as before.

This lasted for a fortnight the acute symptoms then abated for a week, but recurred again, lasting another fortnight. The urine was foul and there was pain and frequency of micturition.

A diagnosis of Typhoid was made.

18 months previously she had had an alveolar abscess opening into the nostril which had been opened and drained for four months, but the infection had not been determined, and thereafter had developed choreiform movements which recurred again now.

On admission was pale and emaciated with a toxic earthy look. She had no appetite, and was quite apathetic.

LXXXV

FIFE and LAWS vide ARCHIVES PEDIATRICS 1911.

A girl aet 6 years. Had had 3 attacks of cholera infantum and at least one attack of severe enteritis each year since. In all these attacks there was much pain in the hypogastrium and lumbar regions, and the urine at these times was said to have been foul and on one occasion contained blood.

In May 1910 had an attack of vomiting and diarrhoea with pains in the back and lower part of the abdomen. This was accompanied by dysuria and the urine contained blood. The acute attack lasted three weeks and the child has been pale and languid ever since.

In July had diarrhoea and vomiting with fever and prostration and pain as before.

This lasted for a fortnight the acute symptoms then abated for a week, but recurred again, lasting another fortnight. The urine was foul and there was pain and frequency of micturition.

A diagnosis of Typhoid was made.

18 months previously she had had an alveolar abscess opening into the antrum which had been opened and drained for four months, but the infection had not been determined, and thereafter had developed choreiform movements which recurred again now.

On admission was pale and emaciated with a toxic earthy look. She had no appetite, and was quite apathetic.

Physical examination yielded nothing.

Temperature ranged from 97.6 to 102. 5

There was no vomiting no rigors, the stools numbered 2 or 3 daily and contained quantities of mucous with a trace of blood.

The urine was acid, cloudy with a trace of albumen and pus +

A leucocytosis of 15,000 was found and the Widal was negative.

Was treated for 3 months with urinary antiseptics with no result.

For a few days she would be fairly well, with no symptoms, but she had 8 exacerbations in three months.

The urine during the whole time contained pus and albumen, with B. Coli.

After one acute attack on December 13th was given 50,000,000 of an autogenous vaccine and next day the temperature was normal, and the symptoms were alleviated. On the 16th was given 100,000,000 on 19th 150,000,000. On 22nd 200,000,000 on 25th 250,000,000 After the latter the temperature went up to 102, and the child was listless.

On the 28th, although the temperature was sub-normal 300,000,000 was unwisely given, resulting in a return of all the symptoms.

The temperature returned to normal on January 9th and on January 13th 100,000,000 were given.

Subsequently 4 injections of 100,000,000 were given. Now no symptoms the child runs about and plays normally, but the urine still contains pus and B. coli.

Cystoscopic examination was made and a moderately severe cystitis was found involving the trigone. The ureteral orifices were dilated and did not contract. The left ureter exuded pus. Indigo carmine was injected intramuscularly, and appeared in 18 minutes on left and 21 on right, indicating kidney involvement specially on the right side.

The appearance closely simulated the appearance of an adult tuberculous bladder.

Examination revealed nothing.

Thought to be malaria the blood was examined, but no plasmodia were found.

Urine was acid, with a trace of albumen, Epithelium and pus cells with a few B.B.C. being seen microscopically.

Child was put on Broctropin grs v. t.i.d. and on August 27th it was reported that she had had one vomiting attack since she was seen and that the urine only contained a trace of pus.

In March 1910 she was reported to be in perfect health, and the urine quite free from pus.

[XXXVI]

VANDERHOOF JOURNAL OF AMERICAN MEDICAL ASSOCIATION 1912

On August 10th, 1909 saw a child (female) aet $3\frac{1}{2}$ who for some time previously had been subject to attacks of fever, vomiting and abdominal pains which occurred at irregular intervals.

Two weeks previously to consultation the child had been taken ill and the temperature had been irregular swinging up to 103. She had had no rigors, but had lost her appetite and was constipated.

Examination revealed nothing.

Thought to be malaria the blood was examined, but no plasmodia were found.

Urine was acid, with a trace of albumen, Epithelium and pus cells with a few R.B.C. being seen microscopically.

Child was put on Urotropin grs v. t.i.d. and on August 27th it was reported that she had had one vomiting attack since she was seen and that the urine only contained a trace of pus.

In March 1910 she was reported to be in perfect health, and the urine quite free from pus.

making a good recovery.

WOLFSTEIN 1 Case.

Female child born March 31st 1894, healthy until December 1894, when she had a sudden illness, characterised by intermittent fever which was not favourably influenced by quinine.

After an illness of two weeks the child got better, but the urine was noticed to be cloudy and have a bad smell.

The health continued good until the end of January 1895 when she had another attack lasting a week. She had similar attacks in May and June. During these attacks she had had some straining during micturition. She had vomited at times, had no diarrhoea or pain or tenderness and there was no marked emaciation.

When brought for examination nothing was found on physical examination and there was no vulvo-vaginitis. The urine was found to contain albumen and pus but no casts. It was acid. Methylene blue was given at irregular intervals which removed the bad odour from the urine but did not improve the general condition. The child was irritable and peevish and obviously out of sorts but on being put on pot. acetate and Lith. citrate improved rapidly in all respects, eventually making a good recovery.

LXXXVIII

THURSFIELD HOSPITAL VOL XLV.

HARTWELL: BOSTON MEDICAL & SURGICAL JOURNAL 1910

A girl aet 4.

A girl aet 11 years was admitted on August 11th

1908 For over a year she had suffered from attacks of vomiting fever and prostration, lasting 6 or 7 days at irregular intervals of about one month.

Between times was a healthy child and played about normally. The urine showed pus and B. coli. She was put on Urotropin and made a good recovery.

On cystoscopic examination the bladder mucous membrans was seen to be red, but there was no inflammation. The ureteral orifices were normal. She was treated with vaccines, both as an in-patient and as an Out-patient, till December 28th, and except for one attack of pain in the left kidney region while in hospital had no symptoms during this time.

On September 14th 1909 had an attack of pain in the left side with pyuria. The examination as before was negative. She was treated with Copper Sulphate for 2 months and then discharged her urine being clearer but on December 18th it was turbid and contained pus and B. Coli in quantities, and she had had another attack three weeks before.

HARTWELL: BOSTON MEDICAL & SURGICAL JOURNAL 1910

A girl aet 11 years was admitted on August 11th 1908 having had recurrent attacks of pain in the loin for two years. Physical examination was negative as was an X-Ray examination of the left kidney. The urine was pale, acid sp gr 1008. It contained pus and a trace of albumen. A profuse growth of B.Coli was obtained on culture media.

On cystoscopic examination the bladder mucous membrane was seen to be red, but there was no ulceration. The ureteral orifices were normal. She was treated with vaccines, both as an In-patient and as an Out-patient, till December 28th, and except for one attack of pain in the left kidney region while in hospital had no symptoms during this time.

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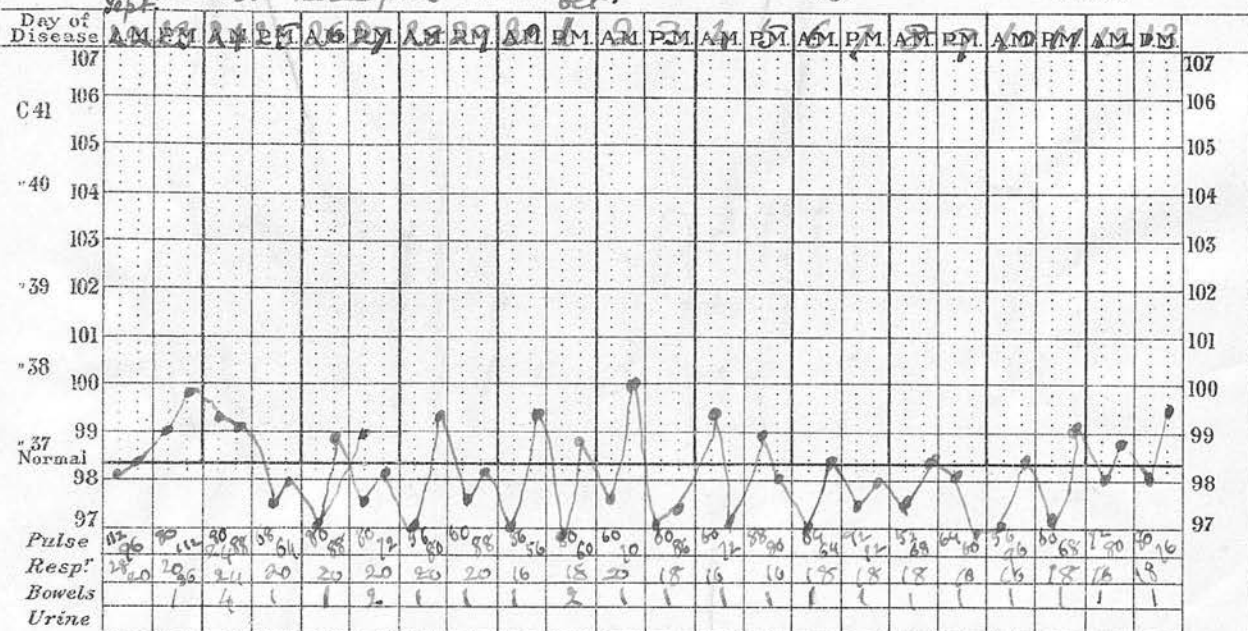
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NAME *Herbert Parsons* Disease *cat.*

Age

Result

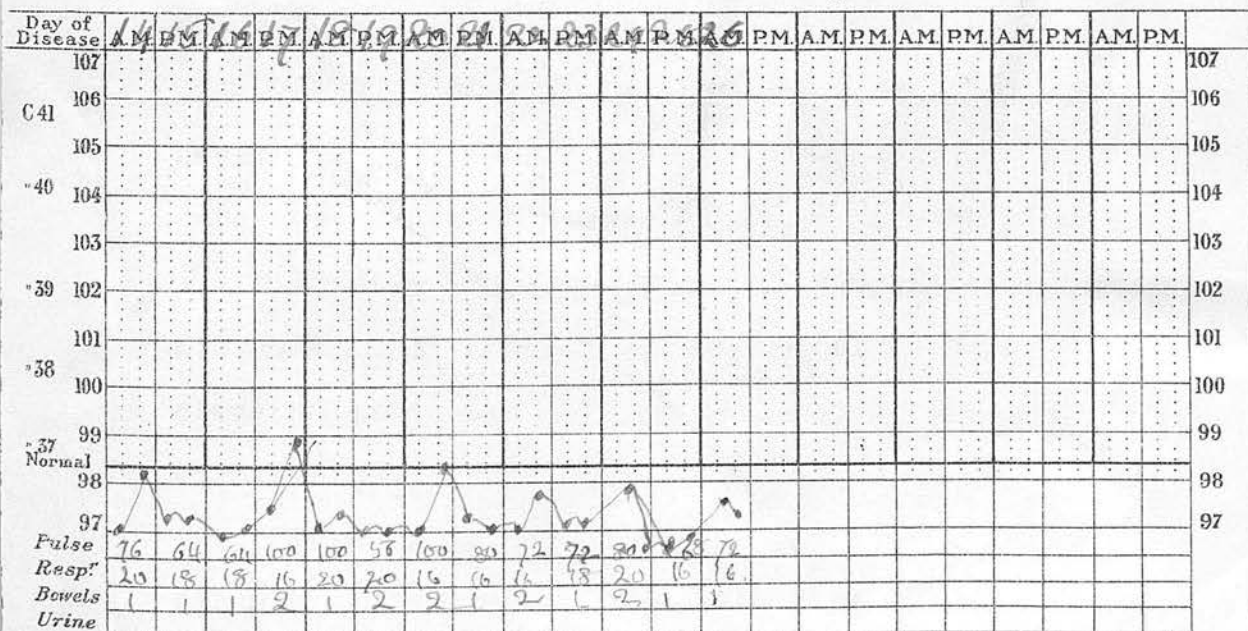


NAME _____

Disease

Age

Result



24th. Looks and feels better, tongue cleaner,
bowels acting well, normal stools.

HUBERT BERESFORD aet 10½ 12 Crawford Street.

September 25th. Still passing urine containing

Admitted September 22nd, 1905. Discharged
October 26th, 1905.

For past four years the child has been subject to
attacks of sickness lasting from seven to ten days
during which time he takes very little, feels languid
and drowsy and sometimes keeps nothing down for a whole
day and once or twice has been noticed to be slightly
jaundiced. Has now got one of these attacks, vomits,
very yellow, stools white or pale.

Has lately had some pain in the right ilio-lumbar
region which prevented him from sleeping.

Previous health: has had measles, whooping cough
and chicken-pox.

Family history: Six other children alive, four
dead.

On admission marked flush, otherwise pale, looks
ill with dark lines under eyes. Complains of nausea,
tongue thickly coated. Splashing of stomach contents
obtained otherwise nothing abnormal in physical
examination.

Urine sp gr 1010. Cloudy, pus present trace of
albumen. Given Mist. Gent. Alk 3 ij t.i.d. and Cal grs
ij nocte.

24th. Looks and feels better, tongue cleaner, bowels acting well, normal stools.

Urine Alb + pus ++ no casts.

September 25th. Still passing urine containing a good deal of pus and a little blood to-day. Says he has no pain and feels better.

September 27th. No active symptoms of disease, urine which on admission was almost clear has developed a copious deposit of pus, which is now beginning to diminish in amount. No tenderness in abdomen to-day. Slight resistance in right ilio-lumbar region. Liver and spleen normal, nil on rectal examination.

September 29th. Urine almost clear again and a little pus, and no blood.

October 1st. Rather more pus again.

October 4th. Urine again clear and slight flocculent deposit.

October 5th. Child apparently well, no symptoms at all.

October 6th. More pus again to-day, getting up.

October 7th. Pus again less, skiagraphed for Renal calculus, with negative result.

October 9th. Examined under chloroform without detecting anything except a slightly thickened appendix which did not appear to be adherent.

Urine contains no pus and a trace of albumen.

DAIS Given: Sod. Sal. grs x.
Sod. Benzoate grs x.
Aq Menth. pip. ad 3 ij t.i.d.

For 15 months got Omit Mist Gent alk station.

She October 11th. Urine clear, no blood, no pus, in trace of albumen, child comfortable, no pain. This

vom October 13th. Urine as on 11th. ever and she was

rather October 19th. No albumen now and has no more pus. Boy up and about, appetite good, bowels regular.

energy October 23rd. Urine normal. Occasional incontinence. not fevered, pale, thin, drowsy, rather irritable

tab October 26th. Discharged with no pyuria and in excellent health. urine was not examined and was given

mist, gent. alk. which seemed to do her a lot of good but a week ago had a very bad attack with severe vomiting and fever. No trouble on micturition, occasional pain in vulva. On examination a pale, thin child, no temperature, irritable and lethargic. Absolutely nothing on physical examination.

Urine acid, alb + acetone ++ pus + coliform bacilli +

Given: Pot. Cit.
Pot. Acet. aa grs x
Uret. grs 1ij
Syr Acanth 5 ss
Aq ad 3 ss 4 hourly
24hr. Cal. grs 1 t.i.d.

DAISY SHAVE aet 3. February 17th.

~~For~~ 16 months^{ago} got a chill~~ing~~ driving to station. She got a bad cold and started vomiting with pain in stomach. Bowels have always been confined. This vomiting attack was accompanied by fever and she was rather yellow. The attack passed off but ever since she has had periodic attacks; between times she has been energetic, playing about quite freely. In attacks although not fevered, pale, thin, drowsy, rather irritable. Was treated as O.P. for a month, December 20th to January 20th, urine was not examined and was given mist. gent. alk. which seemed to do her a lot of good but a week ago had a very bad attack with severe vomiting and fever. No trouble on micturition, occasional pain in vulva. On examination a pale, thin child, no temperature, irritable and lethargic. Absolutely nothing on physical examination.

Urine acid. alb + acetone ++ pus + coliform bacilli +

Given: Pot. Cit.
Pot. Acet. aa grs x
Urot. grs iij
Syr Aurant 3℥ ~~ss~~
Aq ad 3 ℥ 4 hourly ~~℥ss~~
21st. Cal. grs ¼ t.i.d. ~~℥ss~~

Feb. 21st Better, no pain, no vomiting, not fretful at night at all. Nil on examination, urine alkaline, still heaps of pus and bacilli. Leucocytes 17,800.

Bacillus in urine reported to be lactis aerogenes.

Feb. 25th. About the same. No vomiting but still very languid, no appetite.

Urine acid, turbid, pus and bacilli.

Given: Pot Cit.
Pot. acet aa grs xx
Urotropin grs v
Aq ad t.i.d.

Cal grs $\frac{1}{4}$ t.i.d.

28th. A better colour, still very irritable, but not so drowsy, the appetite is poor. No vomiting, bowels freely open.

The urine is still acid, turbid, and pus and bacilli.

Given: Pot. Cit.
Pot. Acet aa grs xl
Urotropin grs viij
Aq ad $\frac{3}{8}$ 4 hourly.

Cal grs $\frac{1}{4}$ t.i.d.

March 11th. Has greatly improved in general health but urine as before.

The child was so far better that she was allowed to go to the country and went a long railway journey after which the urine was thick and of a mahogany colour. This attack cleared up with Urotropin, but she had three mild attacks in the next two months.

XCII

PEDERSEN NEW YORK MEDICAL JOURNAL 1911.

A girl aet 12.

Her mother had suffered from phthisis, but had recovered.

4 years ago the patient began to have attacks of dull pain in the right loin with gastro-intestinal symptoms.

On June 30th 1909 had an aching pain in the right kidney region and complained of some pain on micturition.

One night there was a scanty discharge of blood which was at first thought to be menstrual, but later it was concluded that it was urethral. Two days later the patient was better.

On physical examination nothing was discovered. The temperature was 100°F.

The urine was acid, contained albumen, pus and epithelial cells.

The child was so far better that she was allowed to go to the country and went a long railway journey after which the urine was thick and of a mahogany colour. This attack cleared up with Urotropin, but she had three mild attacks in the next two months.

Early in September she returned home and had a sharp attack similar to the one described, but with more fever than usual.

The urine again cleared but she continued to have brief attacks of loin pain as often as twice a week accompanied by fever, nausea and vomiting.

On examination on October 19th 1909 the child was pallid, emaciated and sickly. Nothing was found in the abdomen.

The urine was pale and cloudy.

The ureters were catheterised and the kidneys drained for 30 minutes.

The left kidney excreted 12 cc of a light amber acid urine of offensive smell. It contained a trace of albumen urea 1% by weight and a moderate sediment showing some R.B.C. and leucocytes but no pus.

The right kidney excreted 15 cc of a pale acid urine of sp gr 1007 It was offensive and contained a slight but heavy deposit containing a few R.B.C. and a lot of pus. Albumen was present and urea .5% by weight.

B. Coli was obtained from the excretions of both kidneys. A good recovery was made under urinary antiseptics.

11
PORTER & FLEISCHNER ARCHIVES PEDIATRICS, 1910.

Girl aet 8 years, was healthy till the summer of 1909 since when she has been languid and pale.

In November 1909 she became ill with headache and vomiting, and a temperature of 104 F. It continued irregularly high and the urine was found to contain pus and B. Coli and had a leucocytosis which varied from 17,000 to 30,000.

She was put on Potassium Citrate but did not improve.

She was then given 25,000,000 dead bacilli prepared from her own urine every four days. The dose was gradually increased to 50,000,000 and 14 doses were given in all.

The urine became sterile and remained so.

from bacilli.

Beyond occasional nocturnal incontinence the child is in excellent health.

Girl aet 5 years had suffered from diurnal and nocturnal incontinence since birth.

On examination the temperature was normal, the blood showed a leucocytosis of 15,000 she had a Vaginal Discharge which gave a pure culture of *Bacillus coli*.

The urine showed *B. coli* but pus was not seen.

She was given grs xv. of Urotropin daily and the symptoms gradually disappeared so that she was well in a month, but the urine still contained *B. coli*.

A vaccine was prepared and given every 4 days for 2 months, starting with 25,000,000 and gradually increasing to 50,000,000. At the end of this time there were no symptoms but the urine still showed *B. coli*. Since then has been given a course of 75,000,000 every two days, and the urine is clearer but not yet free from bacilli.

Beyond occasional Nocturnal incontinence the child is in excellent health.

DOROTHY SPARKS aet 6. 186 Kilburn Park Road.

Admitted October 5th, 1910. Discharged November 2nd 1910.

Had measles last summer since recovery from which she has been attending Out-patients. She has had diurnal incontinence of urine for some time, very seldom wets her bed at night.

On July 27th was given Pot. Acet. and Pot Cit. aa grs x. tid. but on August 24th was no better.

Was given grs v. Urotropin t.d.s.

Recently nocturnal enuresis has been worse, looks well, and has no complaints.

Nothing to be found on examination.

Urine acid, no albumen, pus + Bacilli (B. Coli)

October 6th. No incontinence slept well, no pain or micturition, no frequency.

October 7th. No incontinence, no frequency.

Urine acid, no albumen, Bacilli + pus + Slept well all through the night.

October 8th. Incontinence once to-day.

Given Pot. Acet. Pot. Cit. aa grs xv. t.i.d.

October 12th. Urine acid, no albumen, fewer bacilli. Medicine given 6 hourly.

October 5th. Urine still acid Bacilli + child

well. Medicine given 4 hourly grs v. Urotropin.

October 18th. No incontinence or frequency. Urine neutral, pus and bacilli, also some cocci, child very comfortable. Medicine 3 hourly, omitting urotropin.

October 19th. Vaginal discharge started last night.

October 21st. Urine still acid, 20 grs of each of Pot. Cit. and Pot. Acet. given 3 hourly.

Vaginal discharge shows cocci, but these are not gonococci.

October 23rd. No incontinence or frequency, urine very alkaline turbid copious deposit of pus. Temperature is now more normal than it has been.

October 26th. Urine alkaline, still turbid but less pus. Still slight vaginal discharge. Bowels acting well, child cheerful, no pain. Medicine reduced to 4 hourly.

October 27th. Urine faintly acid, marked bacilluria.

October 29th. Urine acid, rather less bacilli and pus. Temperature more regular. Urotropin grs v. 4 hourly, omit alkalies.

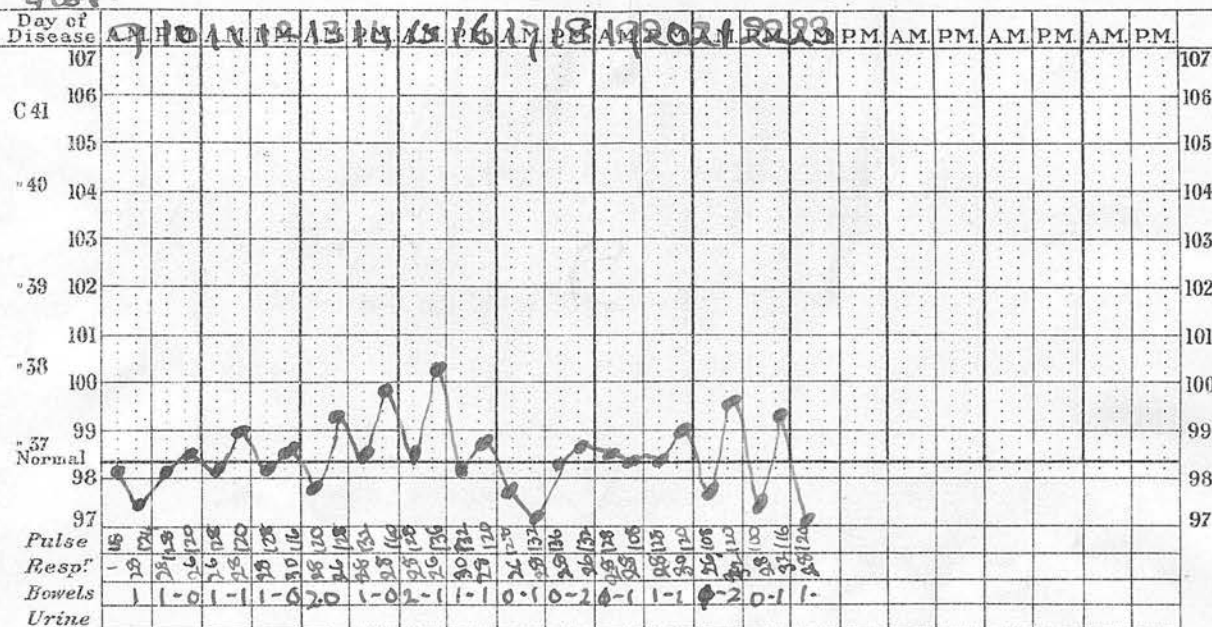
October 31st. Urine quite clear, a few bacilli and pus cells.

November 2nd. Has been no vaginal discharge for several days. The urine is quite clear, no pus, no bacilli, child very well. Discharged.

NAME Helen Smallwood Disease

Age

Result



On examination child is pale but not very so.

111.

Abdomen: nothing to be seen on physical

examination of chest; in abdomen liver enlarged and

acid. No sounds of pus. Numerous B. coli, with some

streptococci and staphylococci.

102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 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NELLIE SMALLWOOD aet 1 2/12.

39, Buckingham Road, Harlesdon.

Admitted November 9th 1910. Discharged November 23rd, 1910.

Several months ago began to cry when she passed water, but did not pass it unduly frequently. The water smelt very strong. For some time very constipated, lately bowels somewhat loose. Was never a healthy child, measles and bronchitis 3 months ago.

Family History: father well, mother phthisical. On examination child is pale but does not look very ill.

Absolutely nothing to be made out on physical examination of chest, in abdomen liver enlarged urine acid. No albumen or pus. Numerous B. coli, with some strepto and staphylococci.

10th November. Slept well, not taking well.

14th November Child fairly well, no symptoms but still large numbers of B. coli.

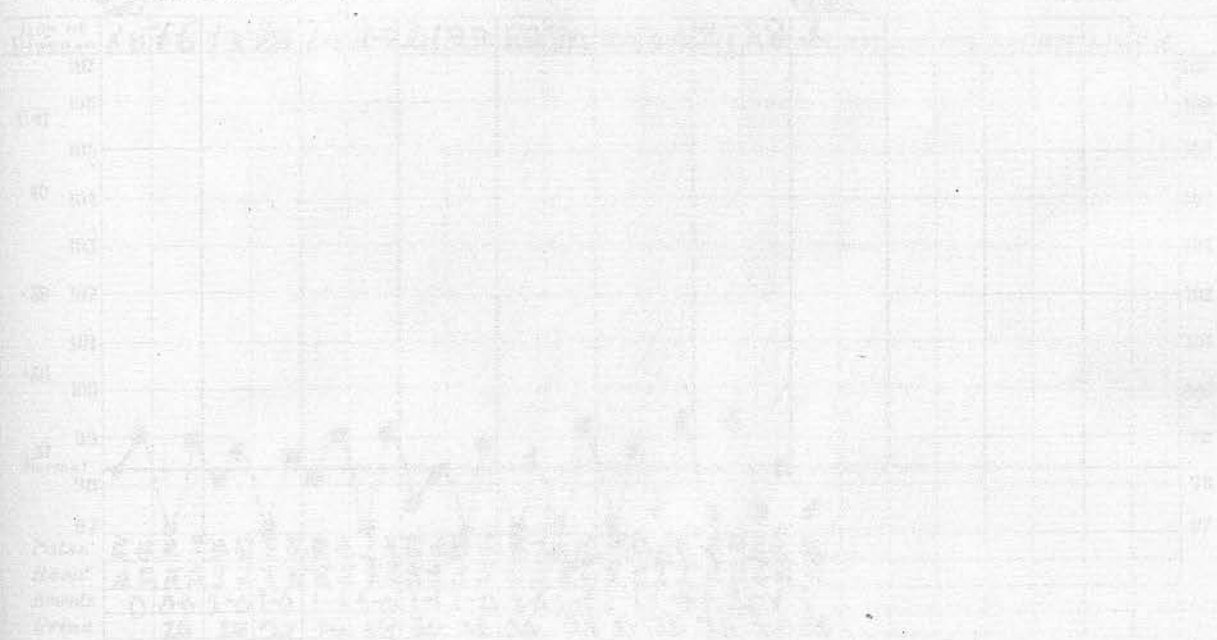
Given: Pot. Cit.
Pot. Acet. aa grs xv.
Syr aurant. mv
Aq ad 3℥

18th. Urine still acid, child well, medicine given in double doses.

21st. Urine faintly alkaline, very few bacilli.

25th. No symptoms, urine alkaline, no bacilli.

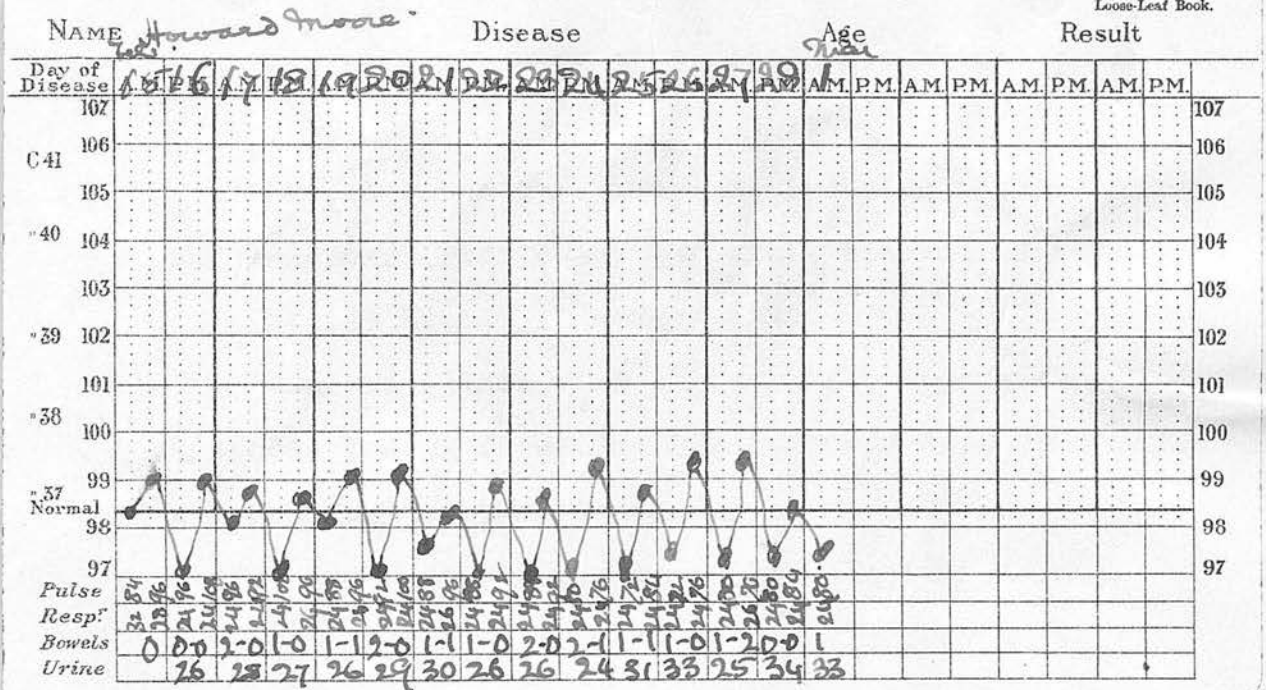
Discharged.



VII

HOWARD MOORE, 101 1/2 7th Street, Bridge Road, Hamwell, W.

Sheet No. 12.
Walker's Medical
Loose-Leaf Book.



adherent, protons and phosolids. Heart, lungs and

abdomen normal. Urine alkali, no albumen or sugar.

Microscopic: pus 2 cells and cocci.

Given: Feb. 26.
Temp. 100.0, 100.0, 100.0.
Pulse 84, 86, 88.
Resp. 20, 21, 22.
Bowels 0, 0, 1.
Urine 26, 28, 27.

February 26. Frequency of micturition, but no
incontinence. Urine clear with a small flocculent
deposit. No albumen or sugar. Microscopic:
cells, pus and cocci.

February 27. No gross undigested motions.
Frequency less, urine clear, albumen trace, pus +
February 28. No symptoms. Urine alkaline.

HOWARD MOORE aet 10. 7 Drayton Bridge Road, Hanwell, W.

Admitted February 15th, 1911. Discharged March 1st.

Previous health: Measles, whooping cough and chicken-pox. Previously gastritis till 11/12 old.

Family History: unimportant.

Present Illness: For the last 6 months the child has been losing flesh but has suffered from no special symptoms except that he passes urine very frequently 5 or 6 times at night. No incontinence of urine. Bowels regular, eats well. The patient is very thin and wasted. Tongue pale, flabby and furred. An adherent prepuce and phimosis. Heart, Lungs and abdomen normal. Urine cloudy, no albumen or sugar.

Microscopically pus B. coli and cocci.

Given: Pot. Cit.
Sod. Bicarb. grs x.
Syr. Aurant. m x
Aq ad $\frac{3}{4}$ 6 hourly.

February 16th. Frequency of micturition, but no incontinence. Urine clear with a small flocculent deposit. Acid, faint trace of albumen. Microscopically, pus not seen B. coli +

February 17th. Two green undigested motions. Frequency less marked, urine clear, albumen trace, pus +

February 20th. No symptoms. Urine alkaline

contains a considerable deposit of pus.

February 21st. Urine alkaline, trace of albumen, small deposit of pus. Child is well. Stop Pot. Cit.

February 22nd. Slight deposit of pus only.

February 23rd. Considerably more pus.

February 25th. No deposit of pus, child very well
Given Imperial drink $\frac{1}{2}$ pint daily.

February 29th. Discharged in good health, urine acid, still a trace of pus.

LVIII

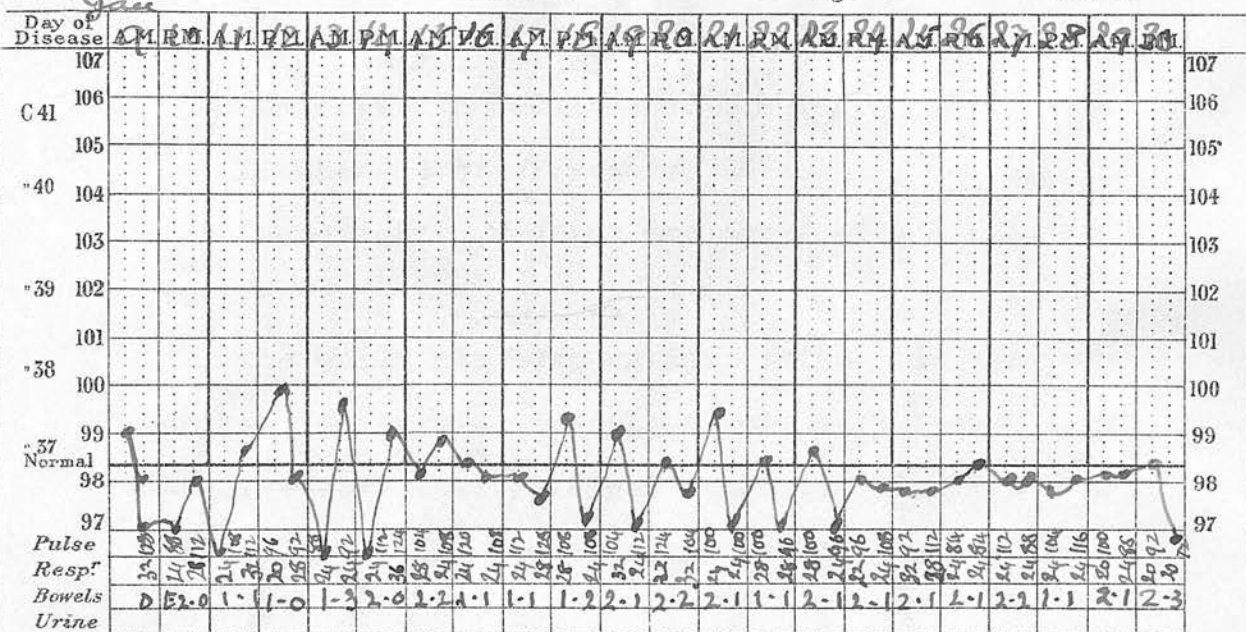
Sheet No. 12
Walker's Medical
Loose-Leaf Book.

NAME *Hellie Hawkins-*

Disease

Age

Result



swell, the arterioles becoming blue. She soon had

cramps at night. She is very restless and the arterioles

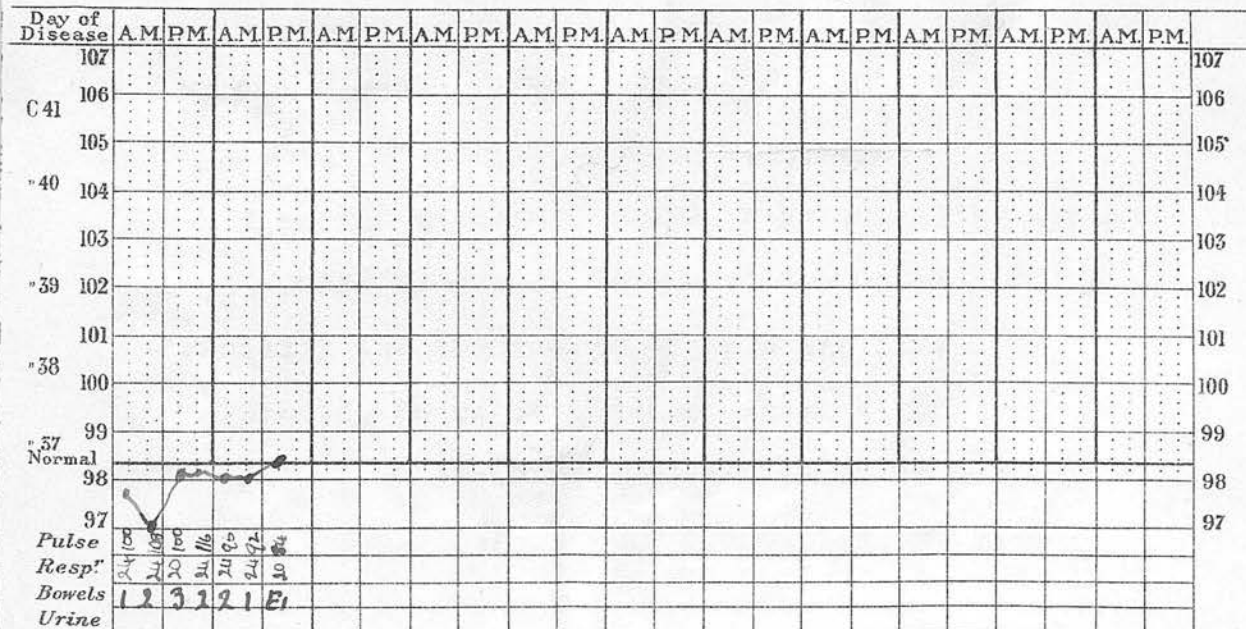
Sheet No. 12
Walker's Medical
Loose-Leaf Book.

NAME

Disease

Age

Result



NELLIE HAWKINS aet 1 10/12.

Admitted 9th January, 1913.

Discharged 3rd February, 1913.

Complaint: Wasting and cough of 2 months duration.

The child has been wasting during the last two months. At first the motions were very loose, green and offensive, but this has improved. There has been a short cough all the time she has been ill, but it has never been severe.

She passes little urine, the eyes, hands and feet swell, the extremities becoming blue. She does not sweat at night, she is very restless and the appetite is poor.

Previous Health: good except for whooping cough 6 months ago.

Family History: nothing to note.

A poorly nourished child of an unhealthy appearance. There is marked oedema of the upper eyelids, especially the right also of legs and feet.

Nothing found on physical examination.

The urine contains a slight trace of albumen.

No blood. Pus in fair quantities, no casts; culturally, a rather scanty growth of B. Coli and streptococcus.

On admission was given Tr Digitalis M j 3 hourly and a hot pack.

On January 11th urine was more plentiful and the oedema less marked. The appetite improving.

On January 14th the urine was being passed much more freely, and the oedema is very much less than it was. Some diarrhoea.

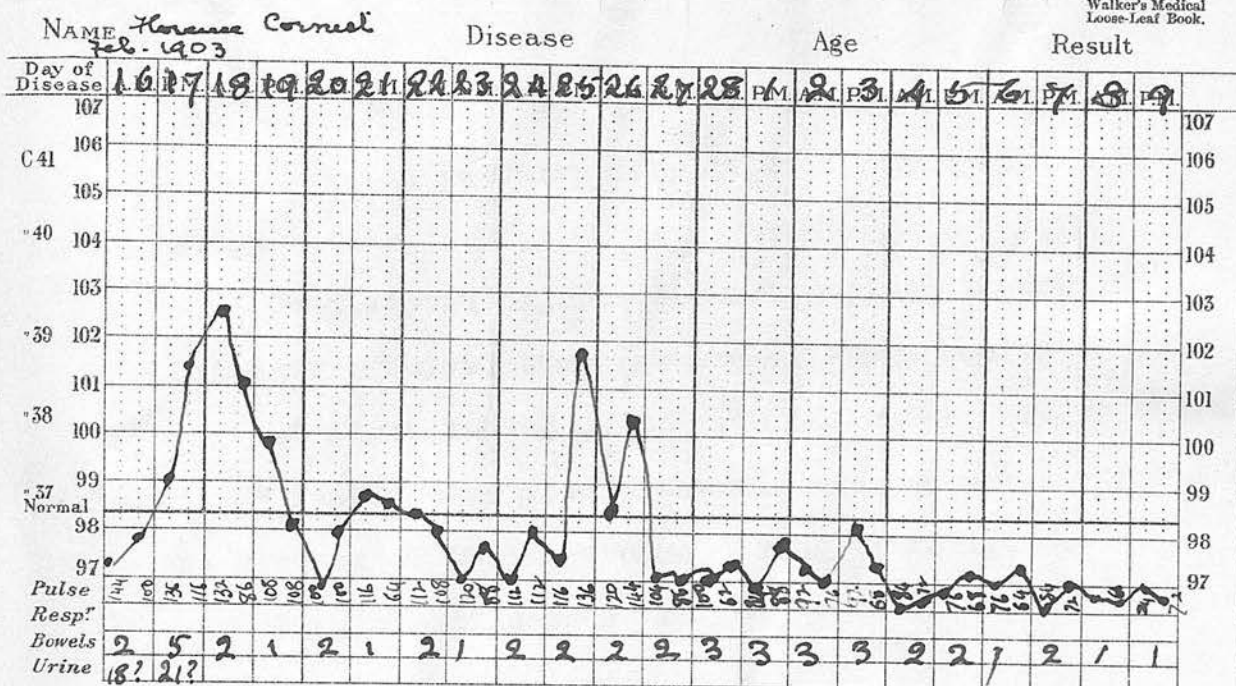
On the 18th the oedema has now disappeared, and the child is bright and well.

The pus has almost disappeared, and there is only a scanty growth of organisms on the culture media.

From this time the motions were rather loose and offensive till the 29th, after which the child completely recovered.

On the 22nd was given Urotropin grs v. t.i.d. and by the time the child went out on February 3rd the urine was free from pus and bacteria.

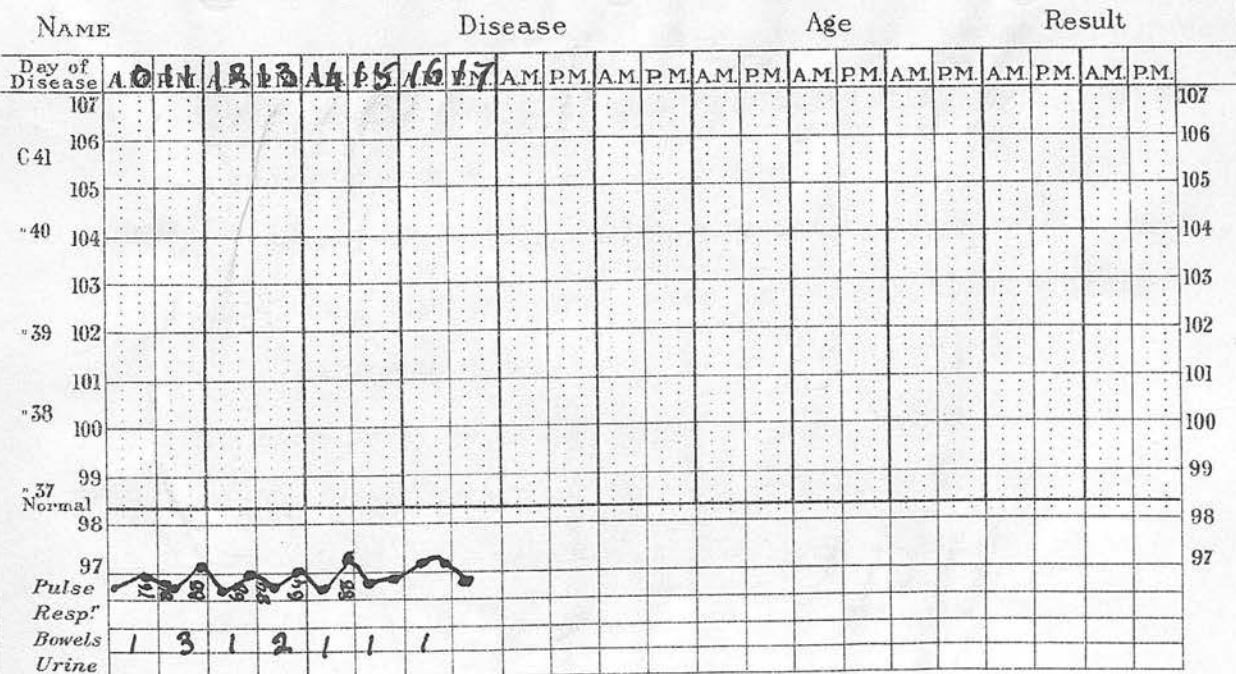
CIX

Sheet No. 12.
Walker's Medical
Loose-Leaf Book.

On admission on 2/18/03, patient was ill.

All is abdomen except slight enlargement of liver.

The lungs are normal beyond an enlargement of right at bases.

Sheet No. 12.
Walker's Medical
Loose-Leaf Book.

FLORENCE CORNISH aet 4 years. 45 Leopold Road, Willesden.

Admitted February 16th 1903. Discharged March 17th 1903.

Complaint: pain in stomach during micturition.

Urine very thick, symptoms are of three months duration.

At first passed blood with the water, but no blood now. No sickness bowels normal. No nocturnal enuresis. No history of Colic, ~~stomach~~ during micturition.

Previous illnesses none.

Family history good.

On admission child thin and pale.

Nil in abdomen except slight enlargement of liver. The lungs normal beyond an impairment of note at bases. Heart normal.

Urine sp gr 1007 slightly acid, trace of albumen, flocculent deposit of pus and bacilli no casts. Given Urotropin grs ij.

February 17th. Note and air entry at right base impaired, but does not seem to be any lung mischief.

February 19th. Had a better night, does not seem to have pain on passing water, but wakes up in the night complaining of pain in the back and the right hypochondriac region is distinctly tender and the kidney can just be palpated. Urine acid, trace of albumen
pus +

February 20th. Better night, only cried out once yesterday. Temperature is down.

February 21st. Seems to have less pain, still holds herself resistant on right side.

February 23rd. Rather irritable yesterday, passed urine 9 times. Right base I.S.Q. Right tonsil + throat infected.

Given glycerine pot. chlor. and

Tr Hyoscyamine m viij
Pot. Cit. grs v.
Sp chlorof m i
Inf. Buchin~~a~~ ad 3 iij t.i.d.

February 26th. Child much less irritable, no tenderness in abdomen now.

Urine acid. No albumen. Pus less in amount.

February 28th. Micturition less frequent, no pain or tenderness at all now.

March 2nd. No frequency but child irritable with furred tongue.

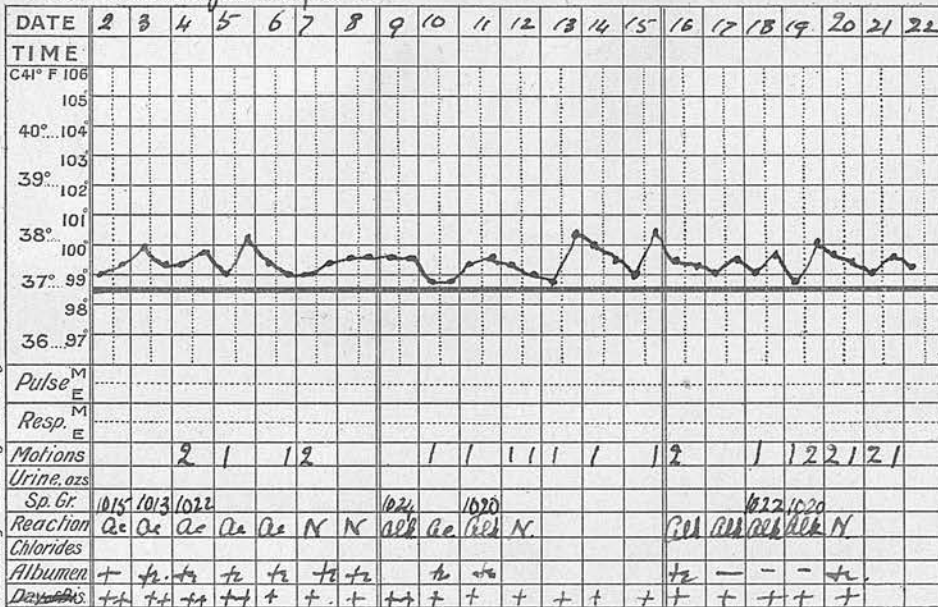
March 7th. Much less irritable and better, has gained $\frac{1}{2}$ lb since admission, urine now alkaline, no albumen and only trace of pus.

March 12th. No pain or tenderness, child fairly well.

March 17th. Discharged, very well in herself but urine still contains pus.

NAME Dorothy Phillips

July 18th



Puo.

GARLAND BROTHERS, LONDON

DOROTHY MAUD PHILIPP aet 3 9/12.

15 Shouldham Street, Edgware Road.

Admitted July 2nd, 1897

Discharged July 22nd, 1897.

Family History: Father, mother, one other child quite well. No miscarriages.

History: Quite well till 3 or 4 weeks ago, she lost her appetite, began to get thin and fretful. Complained of abdominal pain on right side on passing water. Legs ached, pain across pit of stomach. Pain is no worse when running about and is never very acute. It does not shoot down into legs. Has not been sick.

Water has been thick off and on for one month. Bowels have been regular and she has passed some worms yesterday July 1st for the first time.

The patient is a very anaemic child.

Circulatory and respiratory systems normal.

Alimentary system. Tongue furred pale.

Abdomen flaccid, no tenderness, slight resistance just above the pelvis, a little to the right of the middle line. The liver can be felt about $3\frac{1}{2}$ below costal margin.

Urine: neutral, trace of pus, a few oxalic acid

crystals and numerous micro-organisms.

Bladder: sounded nothing to be found.

Given: R. Soda Sal.
Soda Benzoate aa grs viij.
Aq Chlorof. } ij t.d.s.

July 5th. Urine the same. Bowels well opened, no worms. Nothing to be felt in abdomen.

July 5th. Nil abnormal in chest or abdomen except slightly enlarged liver.

More pus and mucus in urine which is alkaline.

July 14th. Patient often passes mucous in motions but no worms.

Given: Confect. Senna 3j

16th. Soda Sal mixture stopped.

Given: Tinct. Ferri perchlor m vj
Pot. Chlor grs ij
Glycerine m x
Aq ad 3℥. t.d.s.

July 22nd Discharged Convalescent having gained 3½ lbs and being much better in herself though still pus in urine.

CONCLUSIONS.

The conclusions which I draw are as follows:

I. Coli-uria is commonest in female children and is most often met with in babies under two years old, but is by no means exceptional in older children.

II. In a large percentage of cases there has been some previous gastro-intestinal derangement, some follow acute illness, especially pneumonia and measles while a few appear to come on with no evident predisposing cause.

III. Of the three routes of infection all may be responsible but the commonest is the ascending route.

IV. The types of the disease may be classified as follows:-

(1) Acute.

(a) Presenting general symptoms predominantly

(b) Presenting cerebral symptoms predominantly

(c) Presenting Pulmonary symptoms predominantly

(d) Presenting abdominal symptoms predominantly

(e) Presenting urinary symptoms predominantly.

(2) Chronic

(a) Intermittent type

(b) Truly chronic type.

V. In all cases, however slight, there is some catarrh of some part of the urinary tract.

VI. The *Bacillus Coli communis* is by no means the only organism responsible for the infection and it is advantageous to determine the nature of this organism in every case.

VII. The prognosis in acute cases is good as regards life unless the kidney substance is seriously involved and is also good as regards cure so long as treatment is persevered with until the urine has been sterile for some months.

VIII. The Prognosis in chronic cases as regards life is good but as regards cure must be very guarded and the patient is liable to suffer from ill health for a long time.

IX. The urine should be examined chemically, microscopically and culturally, whenever a child has any symptoms which cannot be accounted for by the physical signs.

X. In acute cases alkalies combined with urotropin should be administered every 3 or 4 hours. When the urine becomes alkaline the urotropin may be omitted but the alkalies must be kept up in full doses for at least ten days after the relief of all symptoms. If by the end of this time the urine is not sterile vaccines should be given in doses starting at 10,000,000

and increasing until definite local and general reaction occurs going up if necessary as high as 400,000,000 and being administered every four days unless there is any contra-indication. This treatment must be persevered with until the Urine has become sterile, and must be resumed if the urine does not remain sterile.

XI. In chronic cases symptoms may be relieved by alkalies and urotropin and then vaccines administered as above and the treatment may have to be continued for many months.

XII. The general health and condition of the gastrointestinal tract must receive special attention throughout.